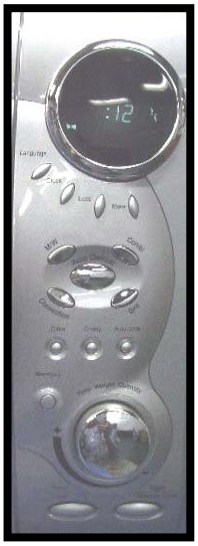
S/M No. : G867T9A001

unique Klasse

Service Manual

KOC-1B0K

Microwave Oven, Convection & Grill



MAY. 2007

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(a) Do not operate or allow the oven to be operated with the door open.

(b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs if necessary: (1) Interlock operation, (2) Proper door closing, (3) Seal and sealing surfaces (arcing, wear, and other damage), (4) Damage to or loosening of hinges and latches (5) Evidence of dropping or abuse.

(c) Before turning on power to the microwave oven for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.

(d) Any defective or misadjusted components in the interlock, monitor, door seal and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.

(e) A microwave leakage check to verify compliance with the Federal performance standard should be performed on each oven prior to release to the owner.

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1. PROPER USE AND SERVICE PRECAUTIONS

CAUTION

This device is to be Serviced only by Properly Qualified Service Personel. Consult the Service Manual for Proper Service Procedures to Assure Continued Safety Operation and for Precautions to be Taken to Avoid Possible Exposure to Excessive Microwave Energy.

1. FOR SAFE OPERATION

Damage that allows the microwave energy (that cooks or heats the food) to escape will result in poor cooking and may cause serious bodily injury to the operator.
IF ANY OF THE FOLLOWING CONDITIONS EXIST, OPERATOR MUST NOT USE THE APPLIANCE.
(Only a trained service personnel should make repairs.)

(1) A broken door hinge.
(2) A broken door viewing screen.
(3) A broken front panel, oven cavity.
(4) A loosened door lock.
(5) A broken door lock.

The door gasket plate and oven cavity surface should be kept clean.
No grease, soil or spatter should be allowed to build up on these surfaces or inside the oven.
DO NOT ATTEMPT TO OPERATE THIS APPLIANCE WITH THE DOOR OPEN.
The microwave oven has concealed switches to make sure the power is turned off when the door is opened.
Do not attempt to defeat them.
DO NOT ATTEMPT TO SERVICE THIS APPLIANCE UNTIL YOU HAVE READ THIS SERVICE MANUAL.

2. FOR SAFE SERVICE PROCEDURES

1. If the oven is operative prior to servicing, a microwave emission check should be performed prior to servicing the oven.
2. If any certified oven unit is found to have excessive emission level 5mw/cm^2, the service person should:
   (a) inform the manufacturer, importer or assembler,
   (b) repair the unit at no cost to the owner,
   (c) attempt to ascertain the cause of the excessive leakage,
   (d) tell the owner of the unit not to use the unit until the oven has been brought into compliance.
3. If the oven operates with the door open, the service person should tell the user not to operate the oven and contact the manufacturer and CDRH immediately.

CAUTION

MICROWAVE RADIATION

PERSONNEL SHOULD NOT BE EXPOSED TO THE MICROWAVE ENERGY WHICH MAY RADIATE FROM THE MAGNETRON OR OTHER MICROWAVE GENERATING DEVICE IF IT IS IMPROPERLY USED OR CONNECTED. ALL INPUT AND OUTPUT MICROWAVE CONNECTIONS. WAVEGUIDE FLANGES AND PASKETS MUST BE SECURE. NEVER OPERATE THE DEVICE WITHOUT A MICROWAVE ENERGY ABSORBING LOAD ATTACHED. NEVER LOOK INTO AN OPEN SAVEGUIDE OR ANTENNA WHILE THE DEVICE IS ENERGIZED.

2. SPECIFICATIONS

POWER SUPPLY		120V AC 60Hz, SINGLE PHASE WITH GROUNDING
MICROWAVE	POWER CONSUMPTION	1500W
	OUT POWER	1000W
	FREQUENCY	2450 MHz
GRILL POWER CONSUMPTION		1600W
CONVECTION POWER CONSUMPTION		1600W
COMBINATION HEATING POWER CONSUMPTION		1600W
OUTSIDE DIMENSIONS (WXHXD)		560(22.0)X543(21.3)X344(13.5)mm (inch)
CAVITY DIMENSIONS (WXHXD)		368.5(14.5)X376.5(14.8)X246(9.7)mm (inch)
NET WEIGHT		Approx. 20.5kg(45.2 lbs.)
TIMER		60 minutes
POWER SELECTIONS		10 level

** Specifications are subject to change without notice.*

3. EXTERNAL VIEW

1. OUTER DIMENSION

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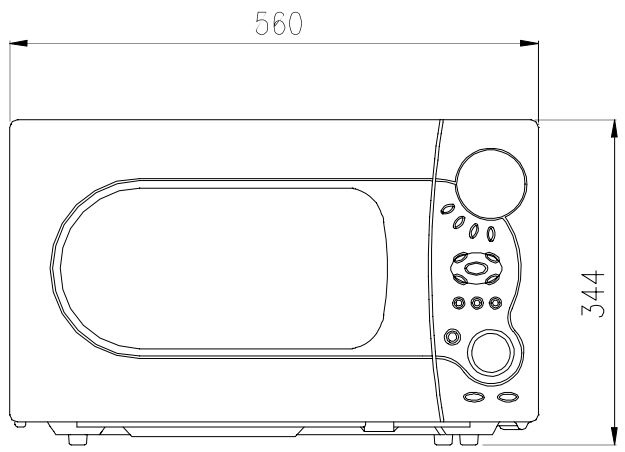


Fig. 1 Front view

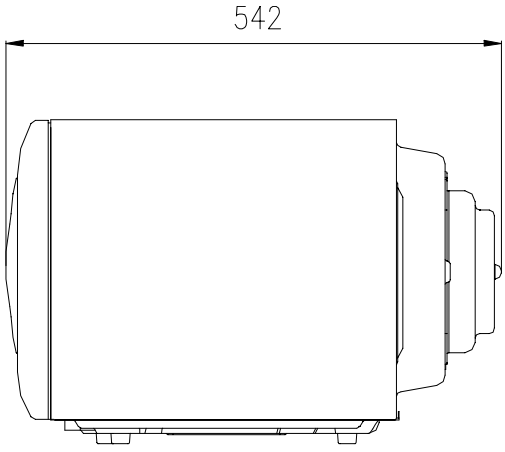
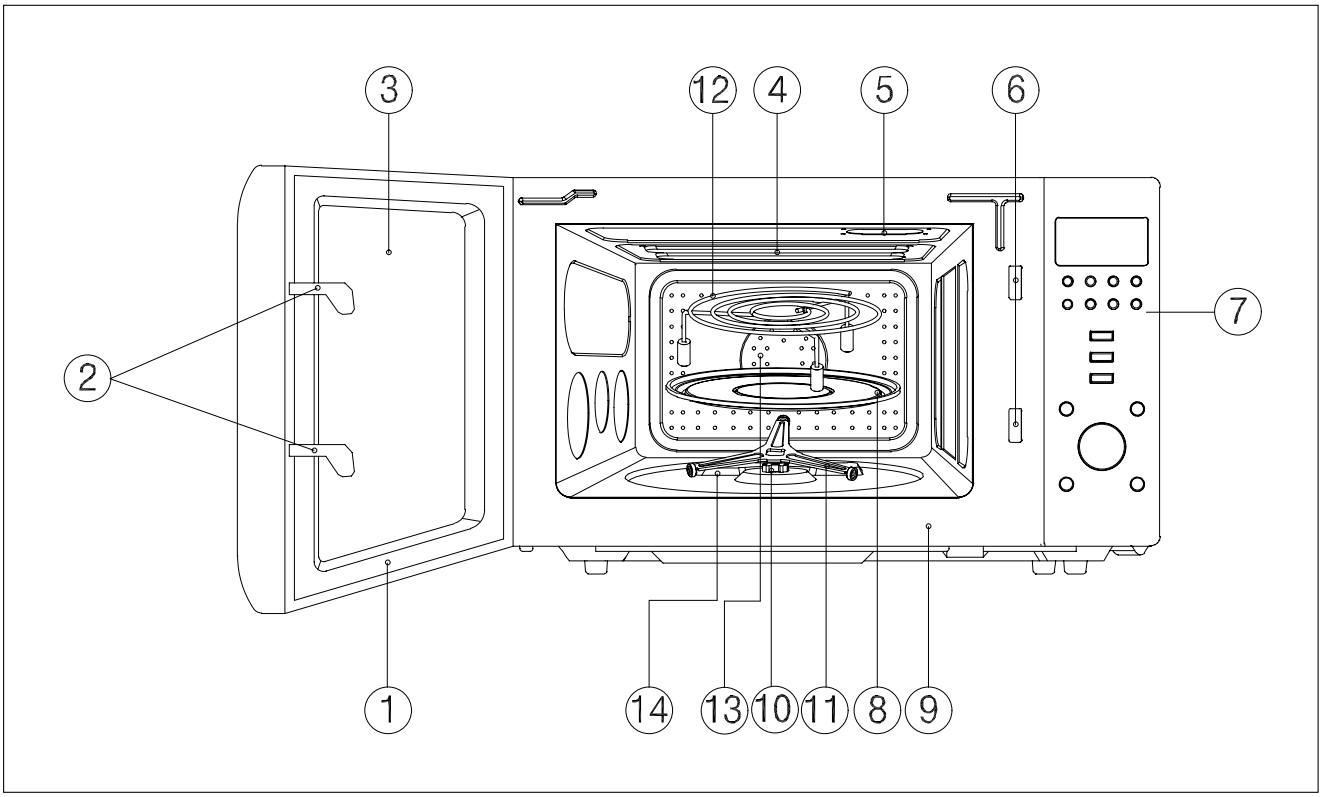


Fig. 2 Side view

2. FEATURE DIAGRAM



1. DOOR SEAL
Door seal maintains the microwave energy within the oven cavity and prevents microwave leakage.

2. DOOR HOOK
When the door is closed, it will automatically lock shut. If door is opened while oven is operating, the magnetron will immediately stop operating.

3. DOOR VIEWING SCREEN
Allows viewing of food. The screen is designed so that light can pass through, but not the microwave.

4. TOP HEATER
Turns on when convection, grill and combi cooking is selected.

5. OVEN LAMP
Automatically turns on during oven operating.

6. SAFETY INTERLOCK SYSTEM

7. CONTROL PANEL

8. TURNTABLE TRAY
Rotates during cooking and ensure even distribution of Microwaves. It can also be used as a cooking utensil.

9. OVEN FRONT PLATE

10. COUPLER
This fits over the shaft in the center of the ovens cavity floor. This is to remain in the oven for all cooking.

11. ROLLER GUIDE
This must always be used for cooking together with the turntable tray.

12. METAL RACK

13. CONVECTION OUTLET & FAN

14. UNDER HEATER

4. INSTALLATION

1. Steady, flat location.

This microwave oven should be set on a steady, flat surface.

2. Leave space behind and side.

All air vents should be kept a clearance. If all vents are covered during operation, the oven may be overheated and, eventually, cause oven failure.

3. Away from radio, and TV sets

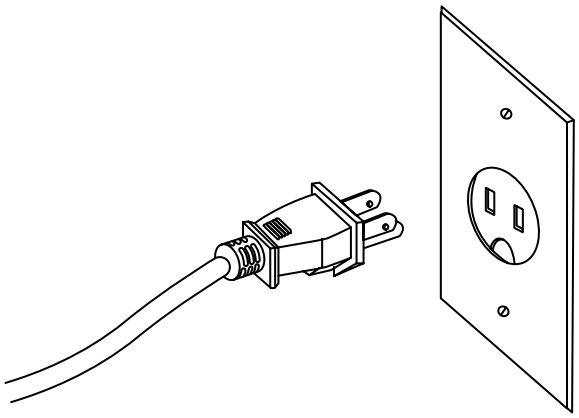
Poor television reception and radio interference may result if the oven is located close to a TV, radio, antenna, or feeder and so on.

4. Away from heating appliances and water taps

Keep the oven away from hot air, steam or splash when choosing a place to position it, or the insulation might be adversely affected and breakdowns occur.

5. Power supply

- Check your local power source.
  This microwave oven requires a current of approximately 13 amperes, 120Volts, 60Hz grounded outlet.
- Power supply cord is about 0.8 meters long.
  1. A short power-supply cord is provided to reduce the risks resulting from becoming entangled in or tripping over a longer cord.
  2. Longer cord sets or extension cords are available and may be used if care is exercised in their use.
  3. If a long cord or extension cord is used:
     1) The marked electrical rating of the cord set or extension cord should be at least as great as the electrical rating of the appliance.
     2) The extension cord must be a grounding type 3-wire cord.
     3) The longer cord should be arranged so that it will not drape over the counter top or tabletop where it can be pulled on by children or tripped over unintentionally.



6. Examine the oven after unpacking for any damage such as:

A misaligned door, broken door or a dent in cavity.

If any of the above are visible, DO NOT INSTALL, and notify dealer immediately.

5. CONTROL PANEL

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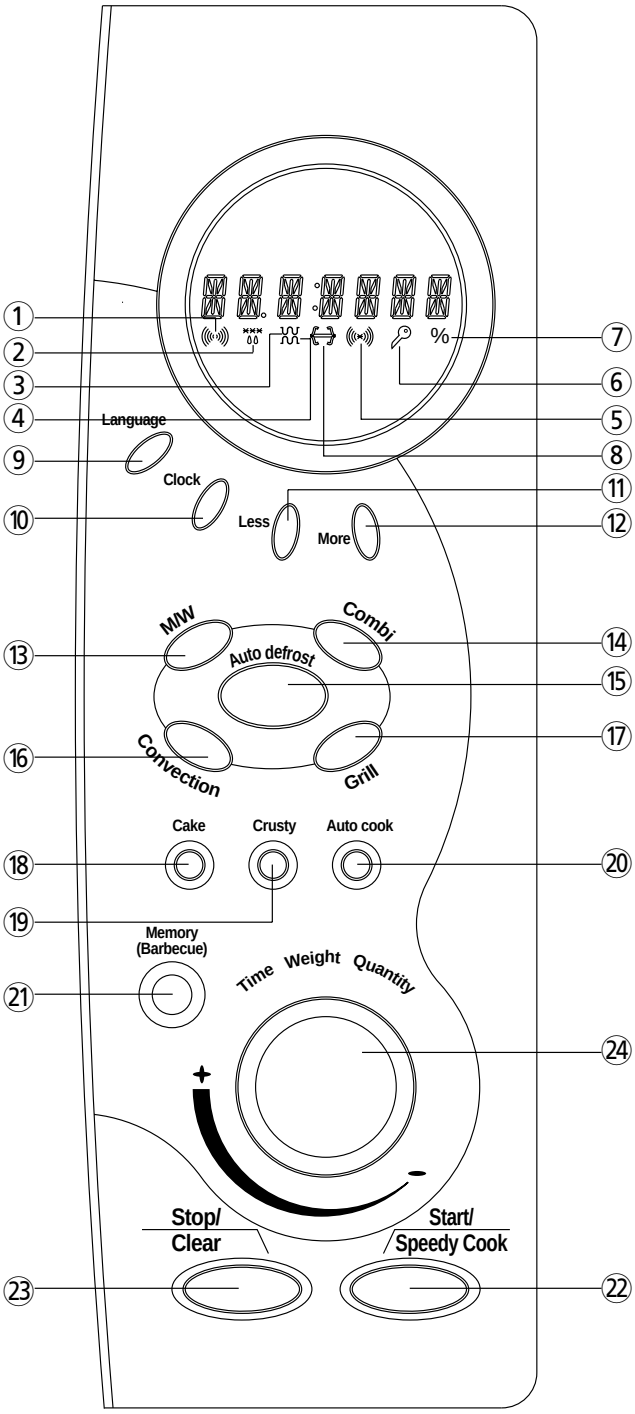


DISPLAY WINDOW

1. **MICROWAVE** indicator, showing microwaving in progress.
2. **DEFROST** indicator, showing defrosting in progress.
3. **GRILL**(upper grill heater) indicator, showing grilling in progress.
4. **GRILL**(lower grill heater) indicator, showing grilling in progress.
5. **CONVECTION** indicator, showing convectioning in progress.
6. **CHILD LOCK** indicator.
7. **%** percentage microwave power level indicator.

BUTTONS

9. **language :** Press to select the language.
10. **clock :** Use to set clock.
11. **less :** Use to remove time from cooking.
12. **more :** Use to add time to cooking.
13. **m/w :** Press to select microwave power level.
14. **combi :** Press to select combi cooking mode.
15. **auto defrost :** Press to select defrost menu.
16. **convection :** Press to select convection temperature.
17. **grill :** Press to select grill.
18. **cake :** Press to select cake menu.
19. **crusty :** Press to select crusty menu.
20. **auto cook :** Press to select auto cook menu.
21. **memory :** Use to set favorite cooking mode.
22. **start/speedy cook :** Press to start a programme, also for speedy start (each press adds 30 seconds microwave cooking time).
23. **stop/clear :** Press once to stop a programme, and twice to cancel a programme.
24. **dial knob :** Use to set time, weight and quantity.

6. DISASSEMBLY AND ASSEMBLY

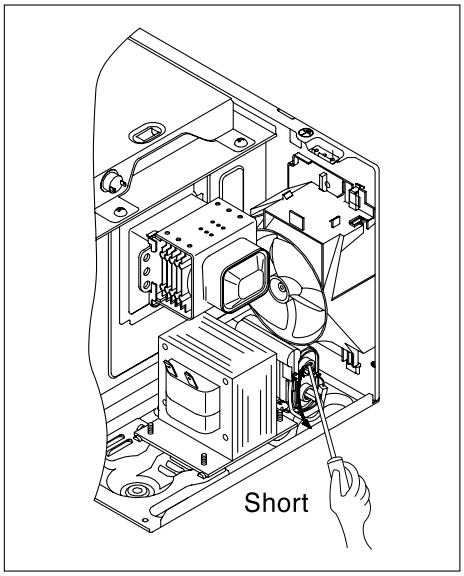
- Cautions to be observed when trouble shooting.

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. It is completely safe during normal operation. However, carelessness in servicing the oven can result in an electric shock or possible danger from a short circuit. You are asked to observe the following precautions carefully.

1. Always remove the power plug from the outlet before servicing.
2. Use an insulated screwdriver and wear rubber gloves when servicing the high voltage side.
3. Discharge the high voltage capacitor before touching any oven components or wiring.

   (1) Check the grounding.
   Do not operate on a two-wire extension cord.
   The microwave oven is designed to be used while grounded.
   It is imperative, therefore, to make sure it is grounded properly before beginning repair work.
   (2) Warning about the electric charge in the high voltage capacitor.
   For about 30 seconds after the operation has stopped, electric charge remains in the high voltage capacitor.
   When replacing or checking parts, short between oven chassis and the negative high terminal of the high voltage capacitor by using a properly insulated screwdriver to discharge.

4. When the 20A fuse is blown out due to the operation of the monitor switch; replace primary interlock switch, secondary interlock switch and interlock monitor switch.
5. After repair or replacement of parts, make sure that the screws are properly tightened, and all electrical connections are tightened.
6. Do not operate without cabinet.

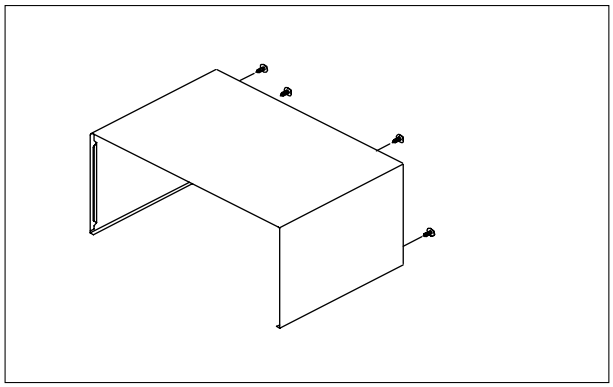


CAUTION : Service personnel should remove their watches whenever working close to or replacing the magnetron.

WARNING : When servicing the appliance, take care when touching or replacing high potential parts because of electrical shock or exposing microwave. These parts are as follows - HV Transformer, Magnetron, HV Capacitor, HV Diode.

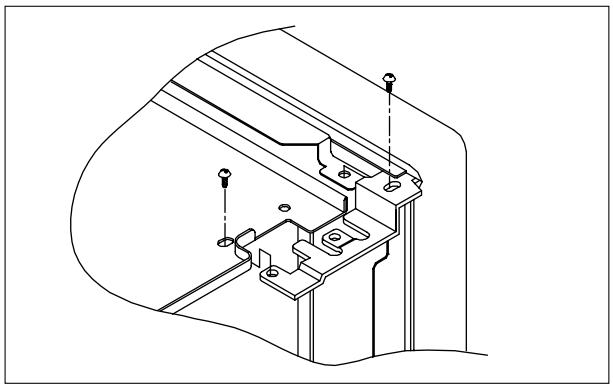
1. To remove cabinet

1) Remove four screws on cabinet back.
2) Push the cabinet backward.



2. To remove door assembly

1) Remove two screws which secure the stopper hinge top.
2) Remove the door assembly from top plate of cavity.
3) Reverse the above for assemby.



NOTE: After replacing the door assembly, perform a check of correct alignment with the hinge and cavity front plate.

3. To remove door parts.

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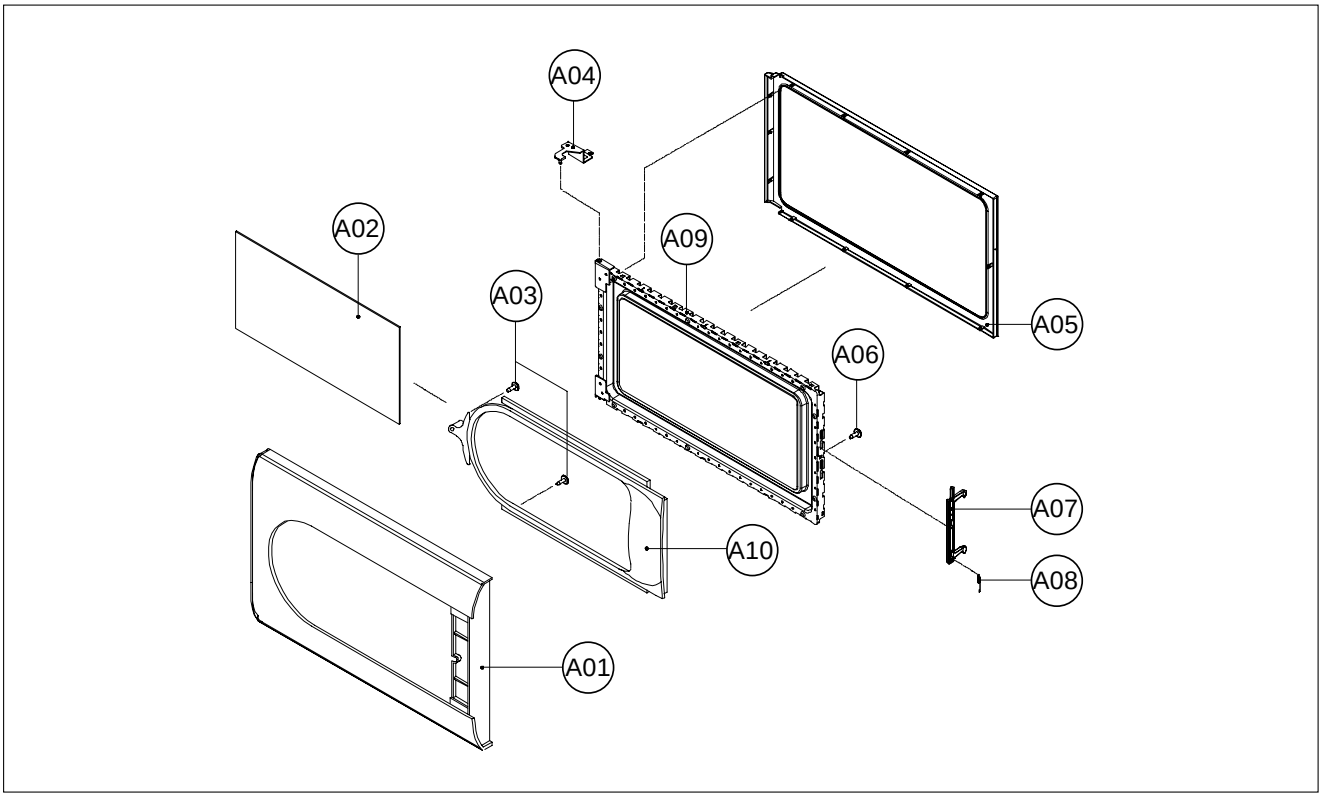


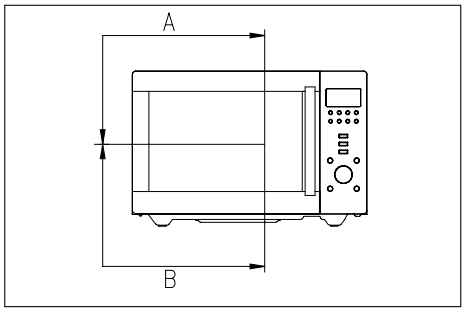
REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
A01	3512204700	FRAME DOOR	PC	1	
A02	3517006900	BARRIER-SCREEN*O	TEMP GLASS T3.2	1	
A03	7112401011	SCREW TAPPING	T1 TRS 4X10 MFZN	2	
A04	3515204900	STOPPER HINGE *T AS	KOC-1B0K0S	1	
A05	3512302300	GASKET DOOR	PBT	1	
A06	7122401211	SCREW TAPPING	T2S TRS 4X12 MFZN	1	
A07	3513101200	HOOK	POM	1	
A08	3515101800	SPRING HOOK	PW1	1	
A09	3511714100	DOOR SEAL AS	KOC-1B0K0S	1	
A10	3512603500	HANDLE DOOR	PC	1	

1) Remove the gasket door(A09) from door seal as(A01).
2) Remove the door frame (A04) from door seal as(A01).
3) Remove the stopper hinge top(A08) from door seal as(A01).
4) Remove the spring(A03) and the hook(A02).
5) Remove the barrier screen outer(A07) from door frame(A04).
6) Remove two screws(A06) from door seal as(A01).
7) Remove the door handle (A05) from door seal as(A01).
8) Reverse the above steps for reassembly.

4. Method to reduce the gap between the door seal and the oven front surface.

(1) To reduce gap located on part 'A'.
- Loosen two screws on stopper hinge top, and then push the door to contact the door seal to oven front surface.
- Tighten two screws.

(2) To reduce gap located on part 'B'.
- Loosen two screws on stopper hinge under, and then push the door to contact the door seal to oven front surface.
- Tighten two screws.



NOTE : A small gap may be acceptable if the microwave leakage does not exceed 4mW/cm^2.

5. To remove control panel parts.

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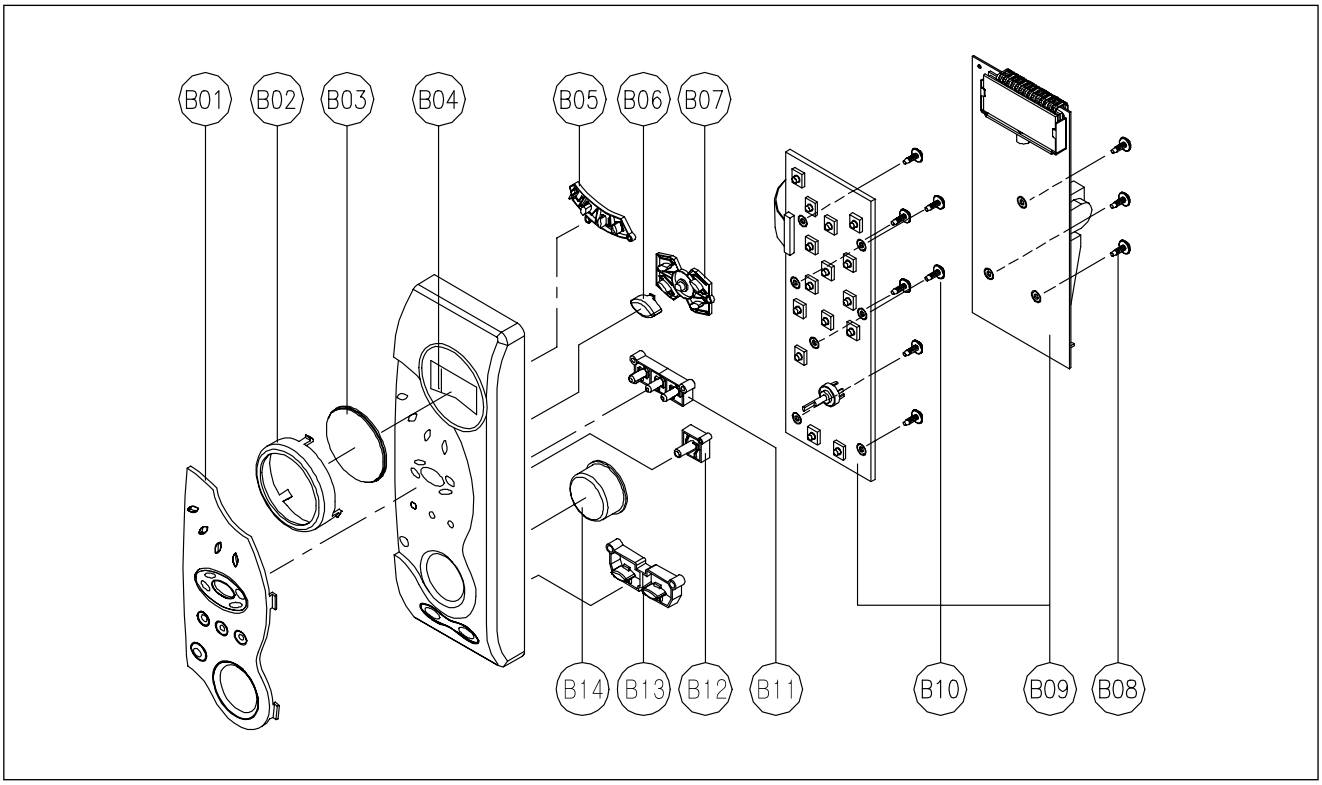
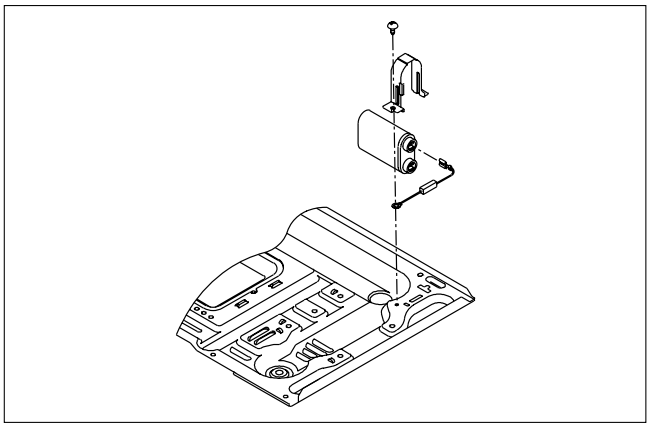


REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
B01	3511605000	DECORATOR C-PANEL	ABS XR-401 H-2938	1	
B02	3511605100	DECORATOR RING	ABS SG-175 SG-0760D	1	
B03	3515501700	WINDOW DISPLAY	PMMA	1	
B04	3516724100	CONTROL PANEL	ABS XR-401 H-2938	1	
B05	3516908300	BUTTON FUNCTION-A	ABS SG-175 SG-0760D	1	
B06	3516908500	BUTTON FUNCTION-C	ABS SG-175 SG-0760D	1	
B07	3516908400	BUTTON FUNCTION-B	ABS SG-175 SG-0760D	1	
B08	7122401211	SCREW TAPPING	T2S TRS 4X12 MFZN	3	
B09	PKMPMSAF10	PCB AS	KOC-1B0K9A27	1	
B10	7121301011	SCREW TAPPING	TS2 PAN 3X10 MFZN	7	
B11	3516908600	BUTTON FUNCTION-D	ABS SG-175 SG-0760D	1	
B12	3516908700	BUTTON FUNCTION-E	ABS SG-175 SG-0760D	1	
B13	3516908200	BUTTON START	ABS SG-175 SG-0760D	1	
B14	3513406000	KNOB VOLUME	ABS SG-175 SG-0760D	1	

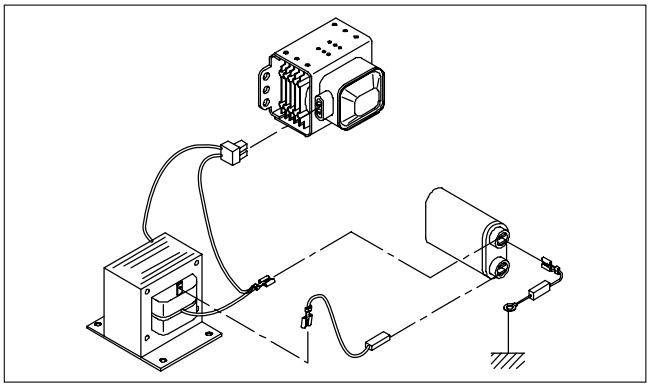
(1) Remove the screw which secure the control panel, push up two snap fits and draw forward the control panel assembly.
(2) Remove three screws (B08) which secure the control panel.
(3) Pull out the Main pcb assembly(B09).
(4) Remove seven screws(B10) which secure the control panel.
(5) Pull out the Knob volume(B14) from the Sub pcb assembly.
(6) Pull out six buttons from the control panel.
(7) Pull out Decorator ring(B02) and Window display(B03) from the control panel .
(8) Pull out the Decorator c-panel(B01) from the control panel.
(9) Reverse the above steps for reassembly.

6. To remove high voltage capacitor.

1) Remove a screw which secure the grounding ring terminal of the H.V. diode and the capacitor holder.
2) Remove the H.V. diode from the capacitor holder.
3) Reverse the above steps for reassembly.

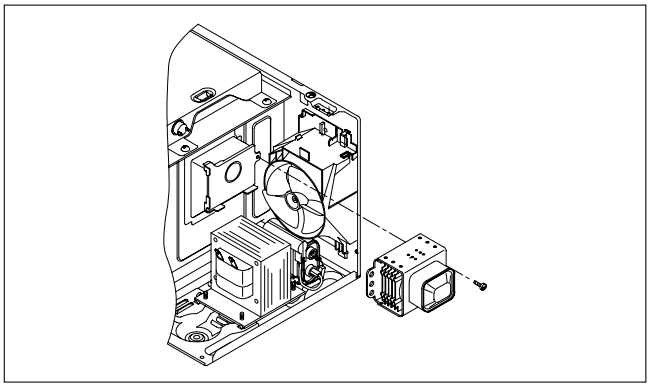


◆ High voltage circuit wiring

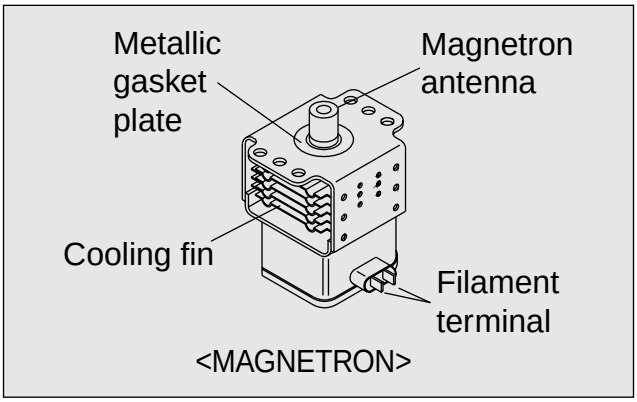


7. To remove magnetron.

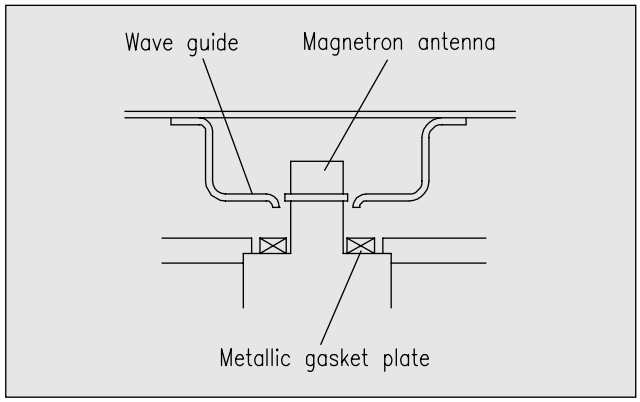
1) Remove a screw which secure the magnetron.
2) Remove the magnetron.
3) Reverse the above steps for reassembly.



CAUTION : Never install the magnetron without the metallic gasket plate which is packed with each magnetron to prevent microwave leakage. Whenever repair work is carried out on magnetron, check the microwave leakage. It shall not exceed 4mW/cm^2 for a fully assembled oven with door normally closed.

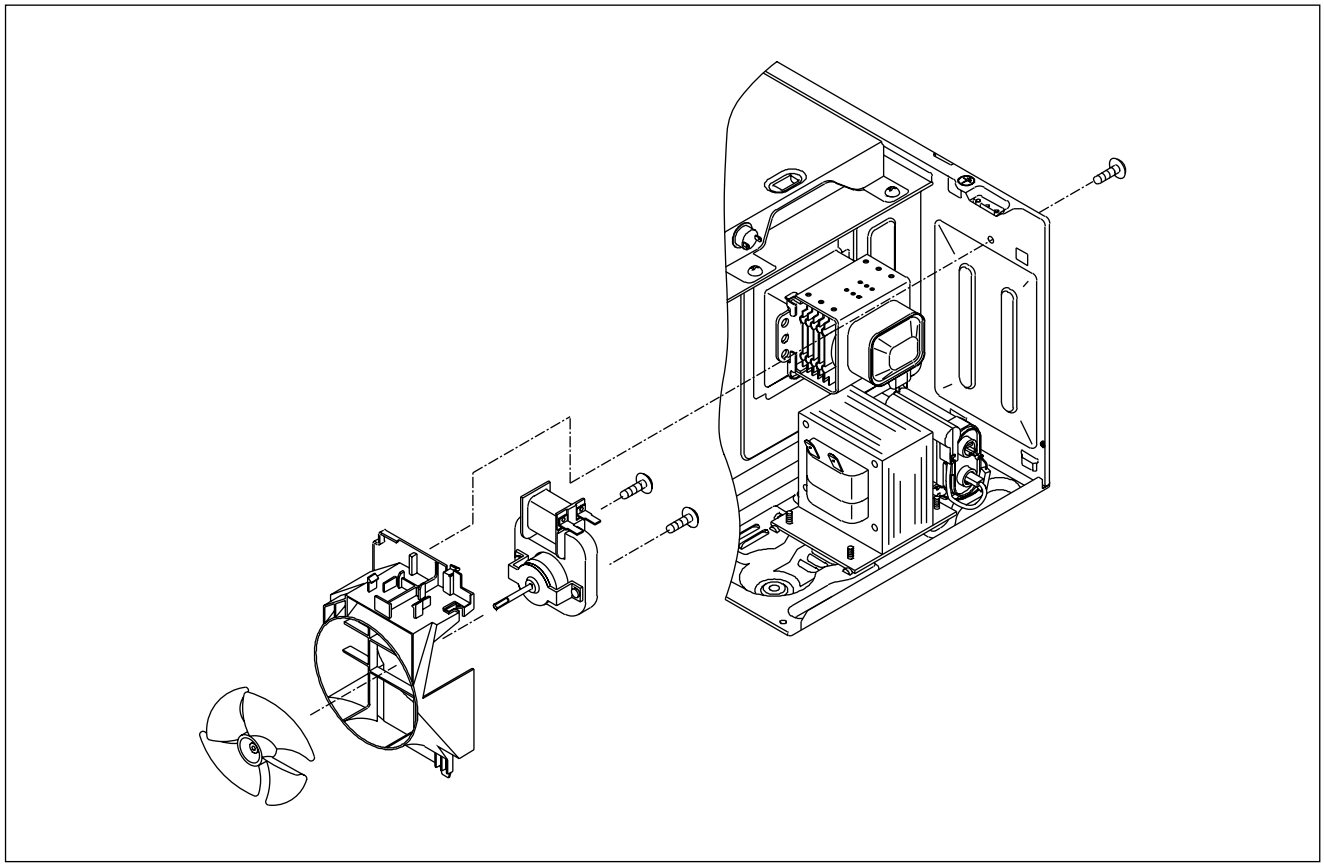


<MAGNETRON>



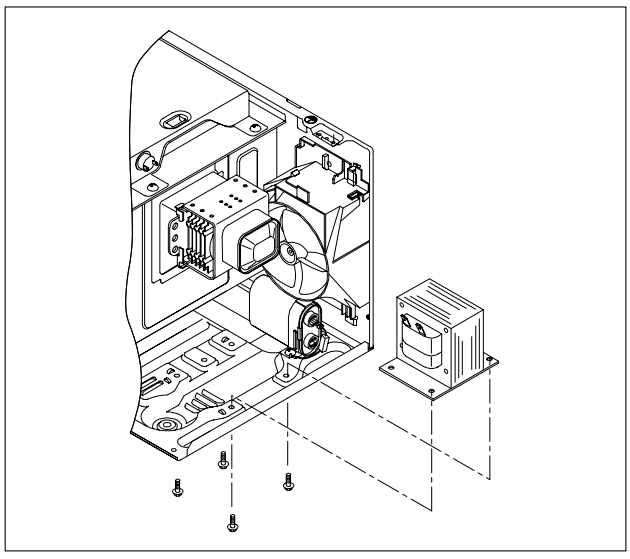
8. To remove wind guide assembly.

1) Remove a screw which secure the wind guide assembly.
2) Draw forward the wind guide assembly
3) Pull the fan from the motor shaft.
4) Remove two screws which secure the motor shaded pole.
5) Remove the motor shaded pole.
6) Reverse the above steps for reassembly.

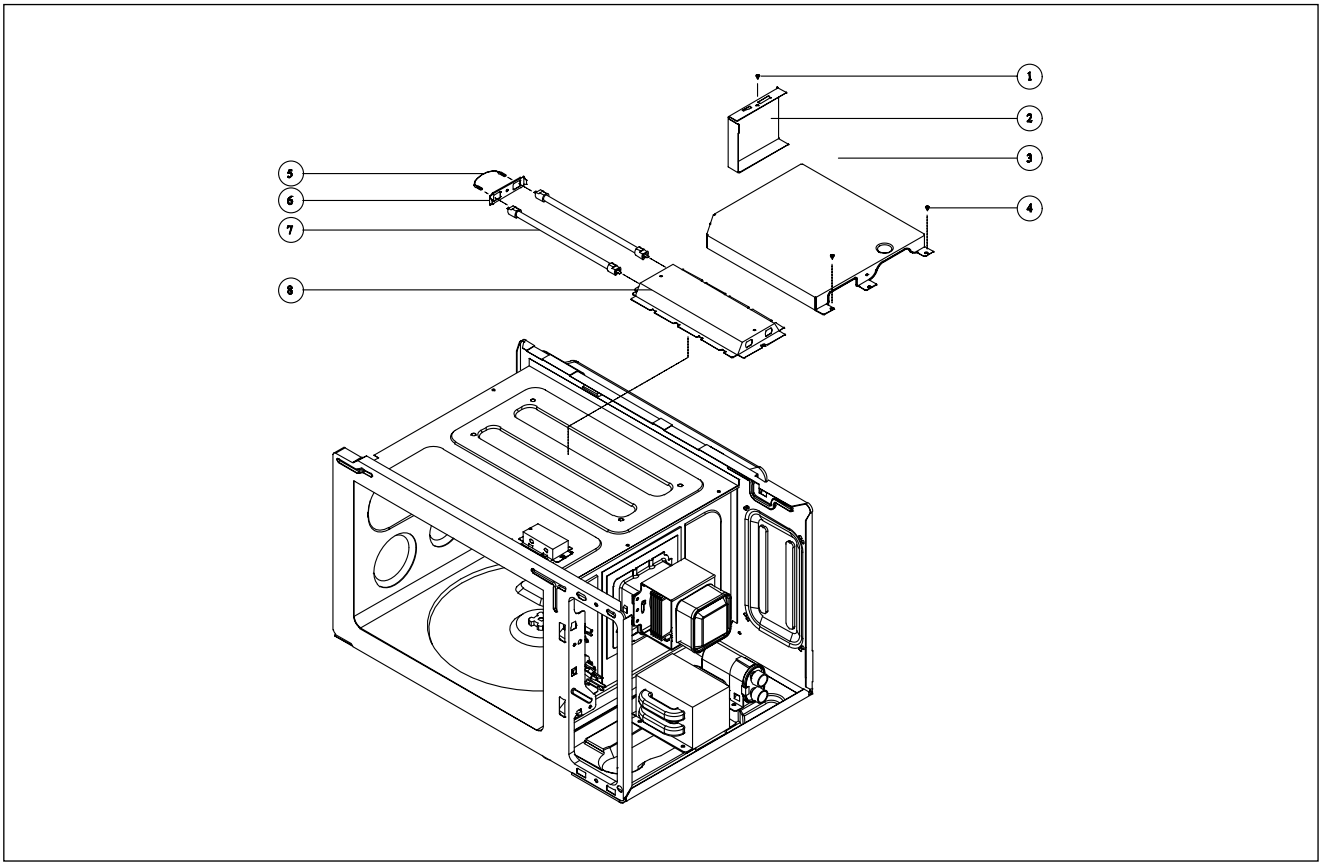


9. To remove H.V.transformer.

1) Remove four screws holding the H.V.transformer.
2) Remove the H.V.transformer.
3) Reverse the above steps for reassembly.



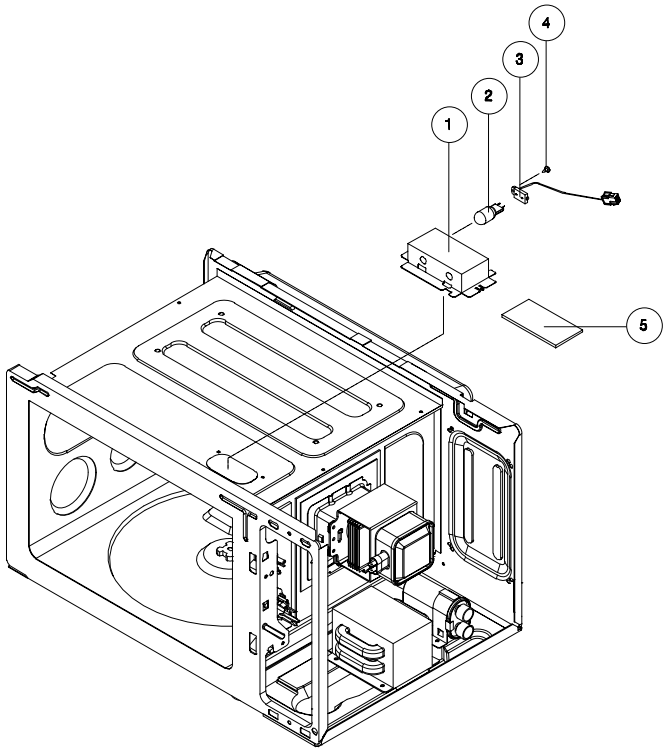
10. To remove Top heater assembly parts.



REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
2	3512520500	GUIDE AIR OUTLET	SA1D-80 T0.5	1	
3	3513302800	INSULATOR HEATER *T	SECC T0.5	1	
4	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	2	
5	3512767000	HARNESS HEATER	KOC-1B0K0S	1	
6	3510607700	BRACKET HEATER *T	SA1D-80 T0.5	1	
7	3512803820	HEATER MIRACLON	60V 550W	1	
8	3511407600	COVER HEATER *T	STS430 T0.5	1	

1) Remove a screw ① which secure the wind guide assembly.
2) Pull out Guide air outlet ②.
3) Remove two screws ④ which secure Insulator heater *t.
4) Pull out Insulator heater *t ③.
5) Pull out Harness heater ⑤.
6) Pull out Bracket heater *t ⑥ from Cover heater *t.
7) Remove Heater miraclon ⑦ from Cover Heater *t.

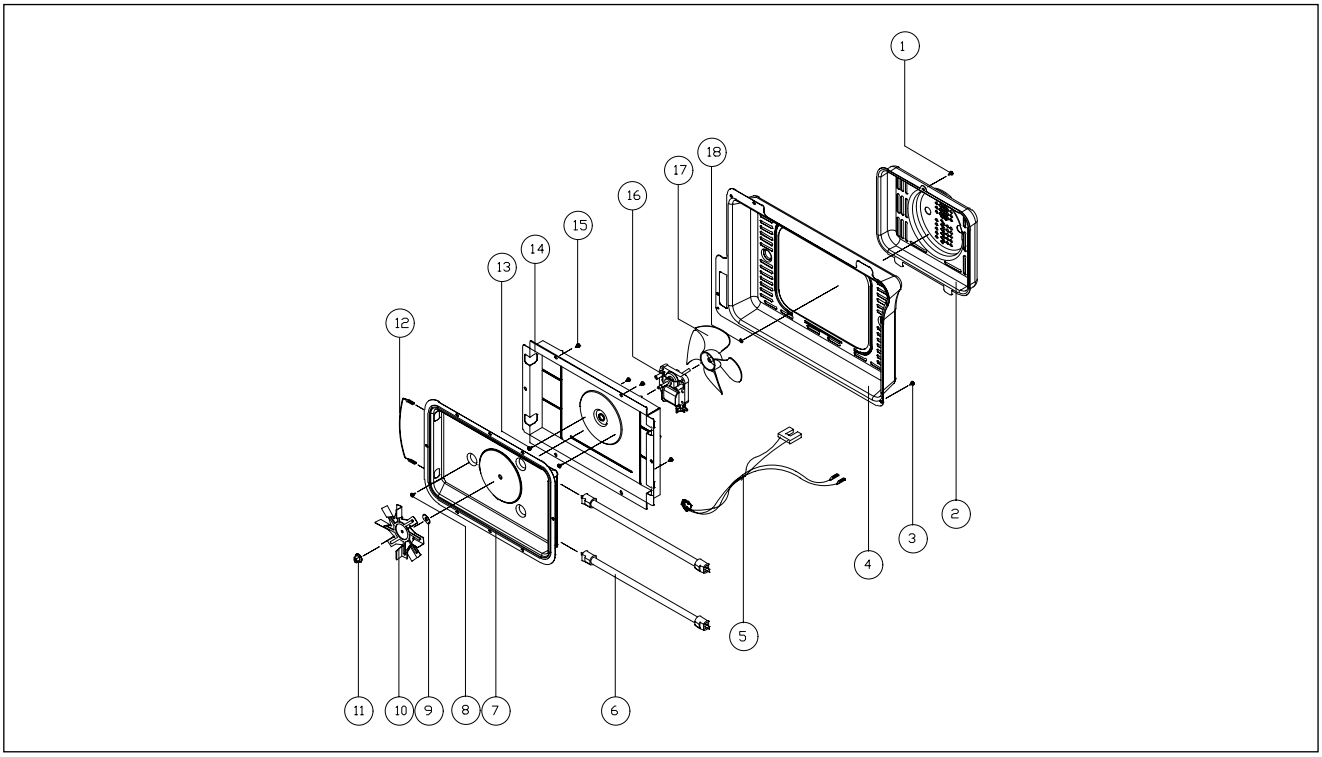
11. To remove Lamp assembly parts.



REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	3511407800	COVER LAMP	STS430 T0.5	1	
2	3513602600	LAMP	HALOGEN 120V 20W	1	
3	3513003910	HOLDER LAMP AS	KOC-1B0K5A	1	
4	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
5	3511407810	COVER LAMP	T/GLASS T2.0	1	

1) Pull out the Lamp assembly.
2) Remove a screw ④ which secures Holer Lamp Assembly.
3) Pull out Lamp ② and Holder lamp as ③ from Cover lamp ①.
4) Detach Lamp ② from Holder lamp as ③.
5) Pull out Cover lamp ⑤ from Cover lamp ①.
6) Reverse the above steps for reassembly.

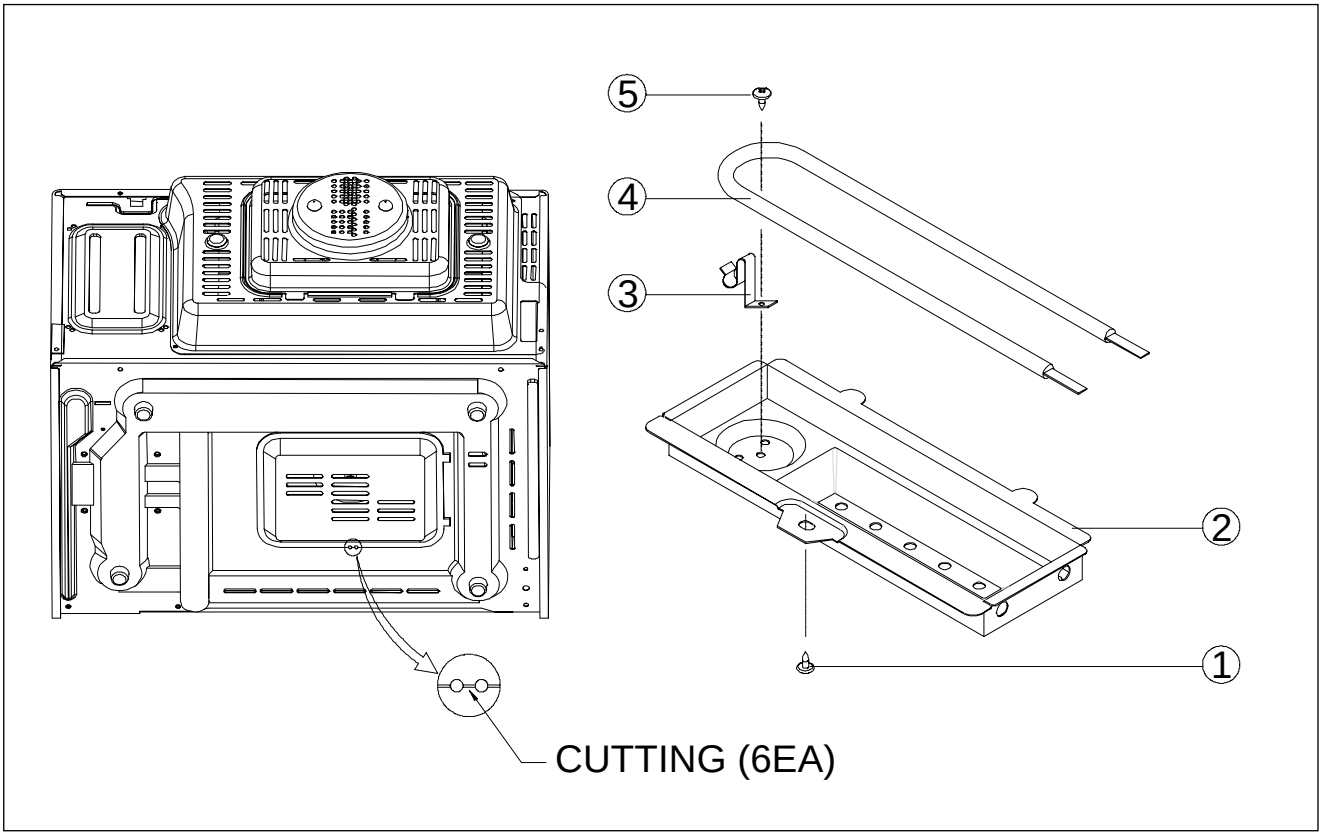
12. To remove Rear heater assembly parts.



REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	2	
2	3511407300	COVER MOTOR *B	SA1D-80 T0.5	1	
3	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	2	
4	3511407400	COVER *B	SA1D-80 T0.5	1	
5	3512766900	HARNESS CONVEC *B	KOC-1B0K0S	1	
6	3512803820	HEATER MIRACLON	60V 550W	2	
7	3511407700	COVER HEATER *B	SA1D-80 T0.5	1	
8	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	1	
9	7400104011	WASHER PLAIN	PW-1-4 MFZN	1	
10	3511800700	FAN CONVECTION	SA1D-80 T0.5	1	
11	7S627W40X1	SPECIAL SCREW	NUT FLANGE M4 MFZN	1	
12	3512766800	HARNESS CONVEC *A	KOC-1B0K0S	1	
13	7601400811	SCREW MACHINE	PAN 4X8 PW MFZN	2	
14	3513302900	INSULATOR HEATER *B	SBHG-1 T0.5	1	
15	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	4	
16	3963822630	MOTOR SHADED POLE	120V 60HZ MW10XA	1	
17	3511800900	FAN	PBT	1	
18	7402704600	RING C	CR-5 SK5	1	

1) Remove a screw ① and pull out Cover motor *B ②.
2) Remove a screw ③ and pull out Cover *B ④.
3) Pull out the Harness convection-B ⑤.
4) Remove four screws ⑮ and then pull out the Rear heater assembly.
5) Remove a Nut ⑪ and the pull out the Fan convection ⑩ and Washer plain ⑨.
6) Remove a screw ⑧ and then separate the Cover heater *B ⑦ and the Insulator heater *B ⑭.
7) Pull out two Heater miraclon ⑥ from the Cover Heater *B .
8) Remove two screw ⑬ and then separate the Insulator heater *B ⑭ and Motor shaded pole ⑯.
9) Remove the C-Ring ⑱ and then pull out the Fan ⑰ from Motor shaft.
10) Reverse the above steps for reassembly.

13. To remove Motor Synchro and Under heater assembly parts.

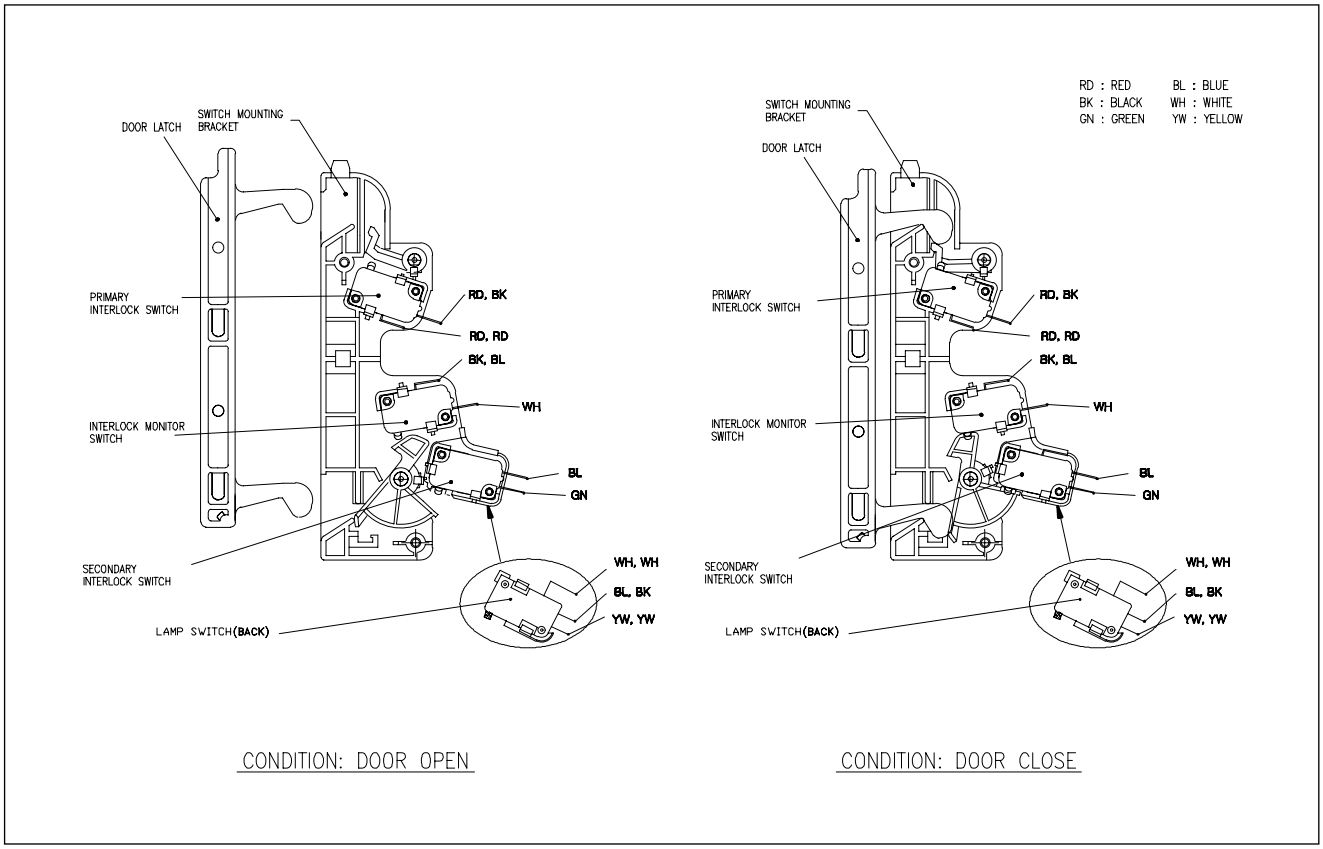


REF NO.	PART CODE	PART NAME	DESCRIPTION	Q'TY	REMARK
1	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
2	3511407500	COVER HEATER *U	STS430 T0.5	1	
3	3515304000	SUPPORTER HEATER *U	STS430 T0.5	1	
4	3512805100	HEATER *U	120V 400W 1SOPE4543002	1	
5	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	1	

1) Cut the Motor syncro cover parts from the base plate.
2) Remove a screw and pull out Motor syncro.
3) Remove a screw ① which secures Under heater assembly.
4) Remove a screw ⑤.
5) Pull out Heater *U ④ from Cover heater *u ②.
6) Reverse the above steps for reassembly.

7. INTERLOCK MECHANISM AND ADJUSTMENT

The door lock mechanism is a device which has been specially designed to completely eliminate microwave radiation when the door is opened during operation, and thus to perfectly prevent the danger resulting from the leakage of microwave.



(1) Primary interlock switch

When the door is closed, the hook locks the oven door. If the door is not closed properly, the oven will not operate.
When the door is closed, the hook pushes the button of the microswitch. Then the button of the primary interlock switch bring it under ON condition.

(2) Secondary interlock switch and interlock monitor switch

When the door is closed, the hook pushes the lock lever downward. The lock lever presses the button of the interlock monitor switch to bring it under OFF condition and presses the button of the secondary interlock switch to bring it under ON condition.

ADJUSTMENT :

Interlock monitor switch

When the door is closed, the interlock monitor switch should be opened before other switches are closed.
When the door is opened, the interlock monitor switch should be closed after other switches are opened.

(3) Adjustment steps

a) Loosen the one mounting screw.
b) Adjust interlock switch assembly position.
c) Make sure that lock lever moves smoothly after adjustment is completed.
d) Tighten completely two mounting screws.

NOTE :

Microwave emission test should be performed after adjusting interlock mechanism.
If the microwave emission exceed 4mW/cm^2, readjust interlock mechanism.

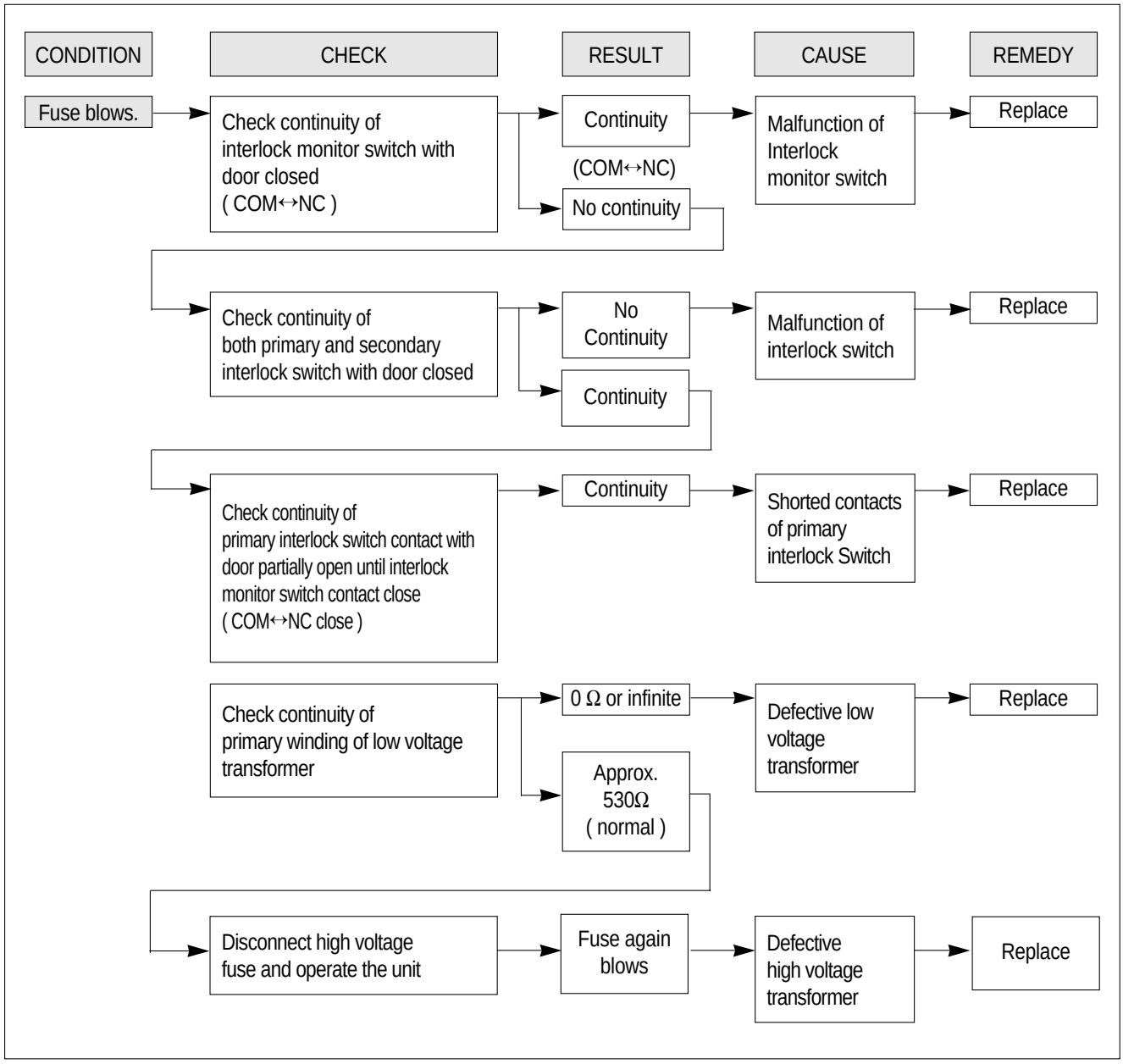
8. TROUBLE SHOOTING GUIDE

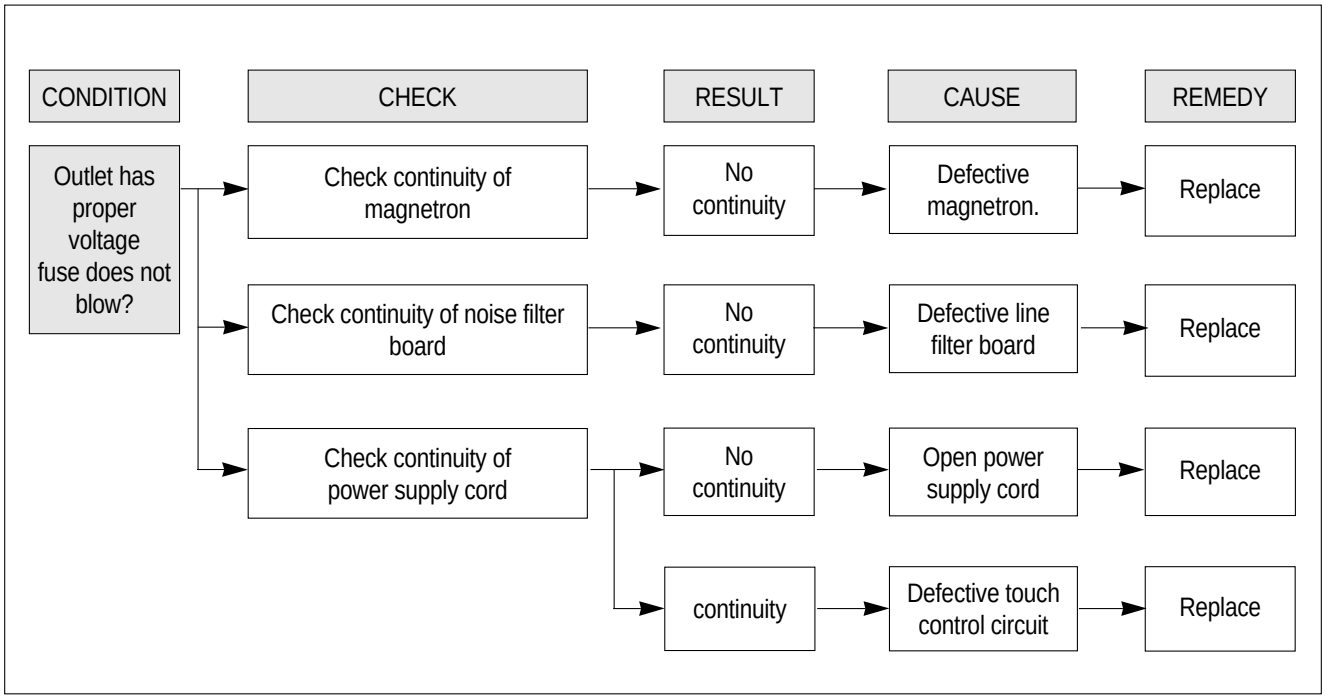
Following the procedure below to check if the oven is defective or not.

1) Check grounding before trouble checking.
2) Be careful of the high voltage circuit.
3) Discharge the high voltage capacitor.
4) When checking the continuity of the switches, fuse or high voltage tranformer, disconnect one load wire from these parts and check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.

NOTE : When electric parts are checked, be sure the power cord is not inserted the wall outlet.
Check wire harness, wiring and connection of the terminals and power cord before check the parts listed below.

(TROUBLE 1) Oven does not operate at all : any inputs can not be accepted.

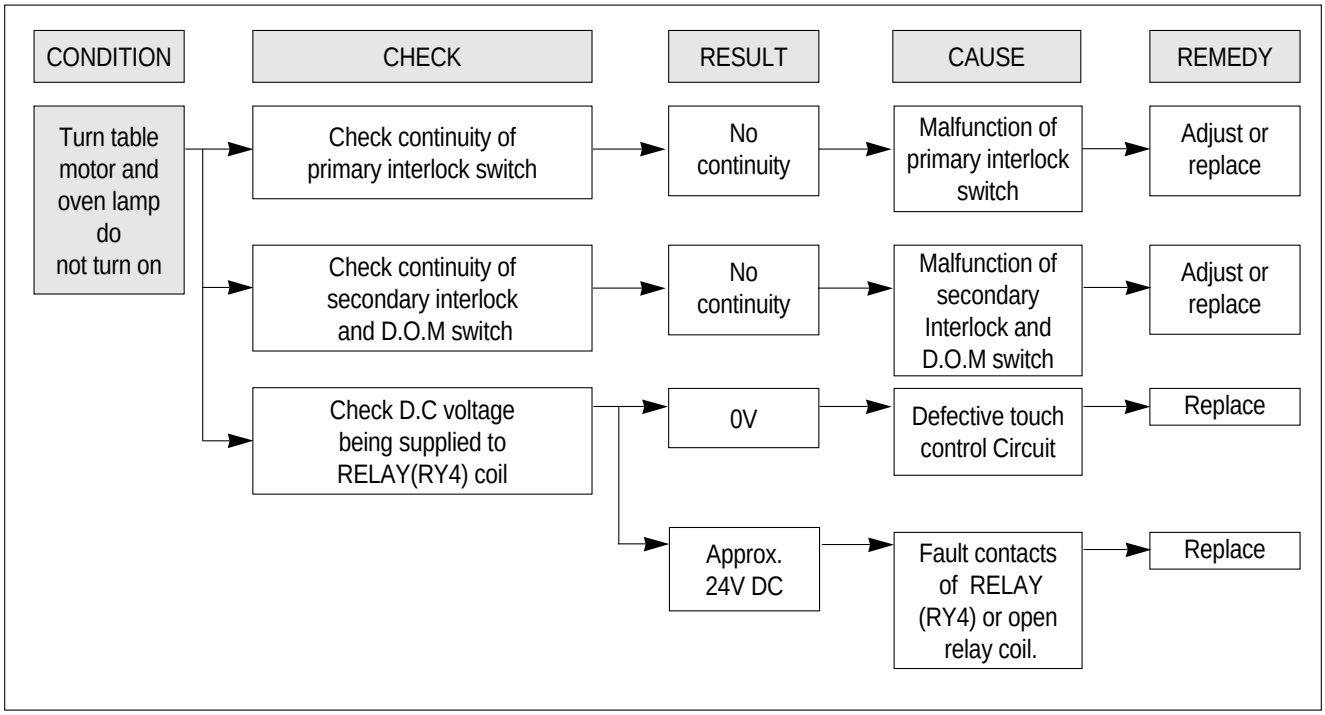




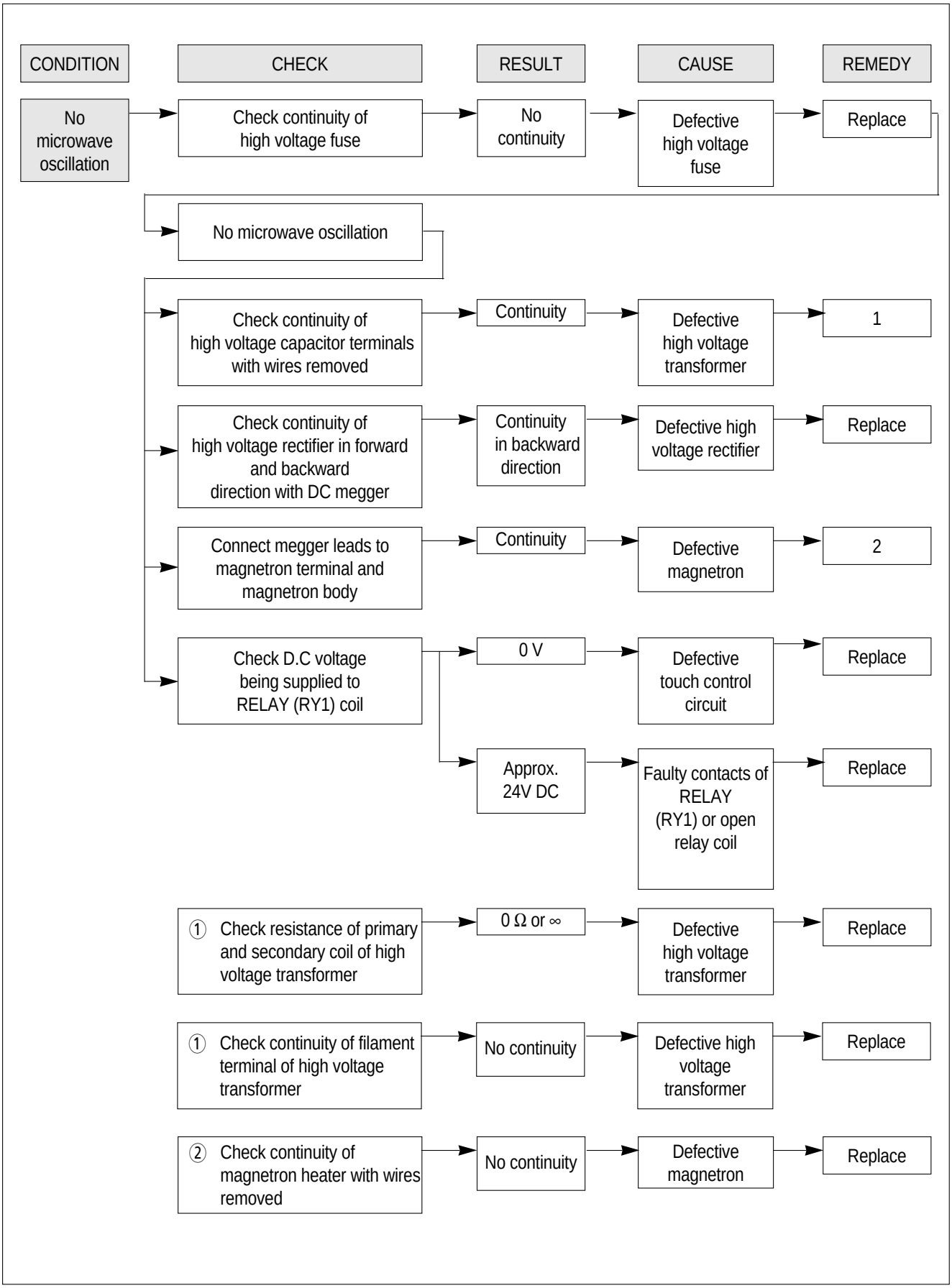
NOTE : All these switches must be replaced at the same time, please refer to (7.Interlock mechanism and adjust) for adjustment instructions

(TROUBLE 2)

Display shows all figures selected, but oven does not start cooking, even though desired program and time are set and start button is tapped.

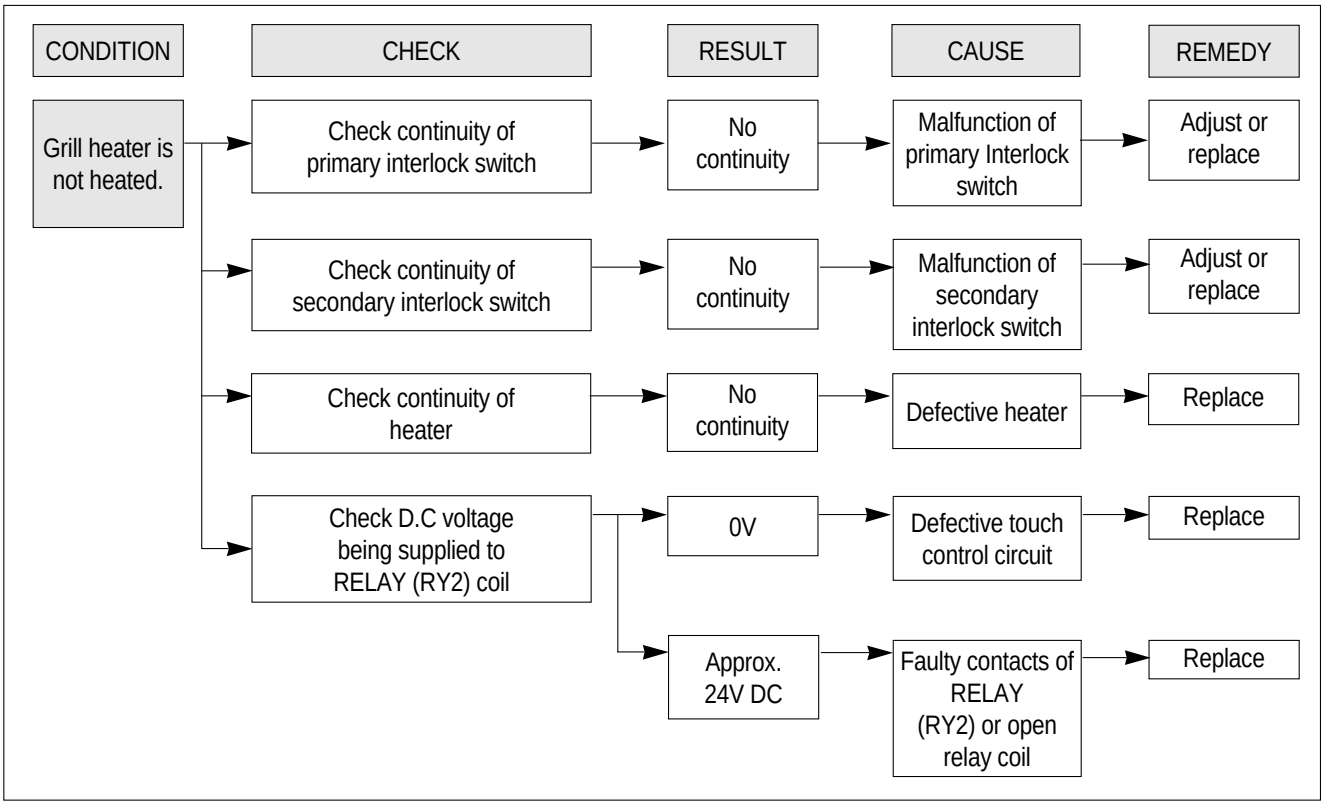


TROUBLE 3) No microwave oscillation even though fan motor rotates.



(TROUBLE 4)

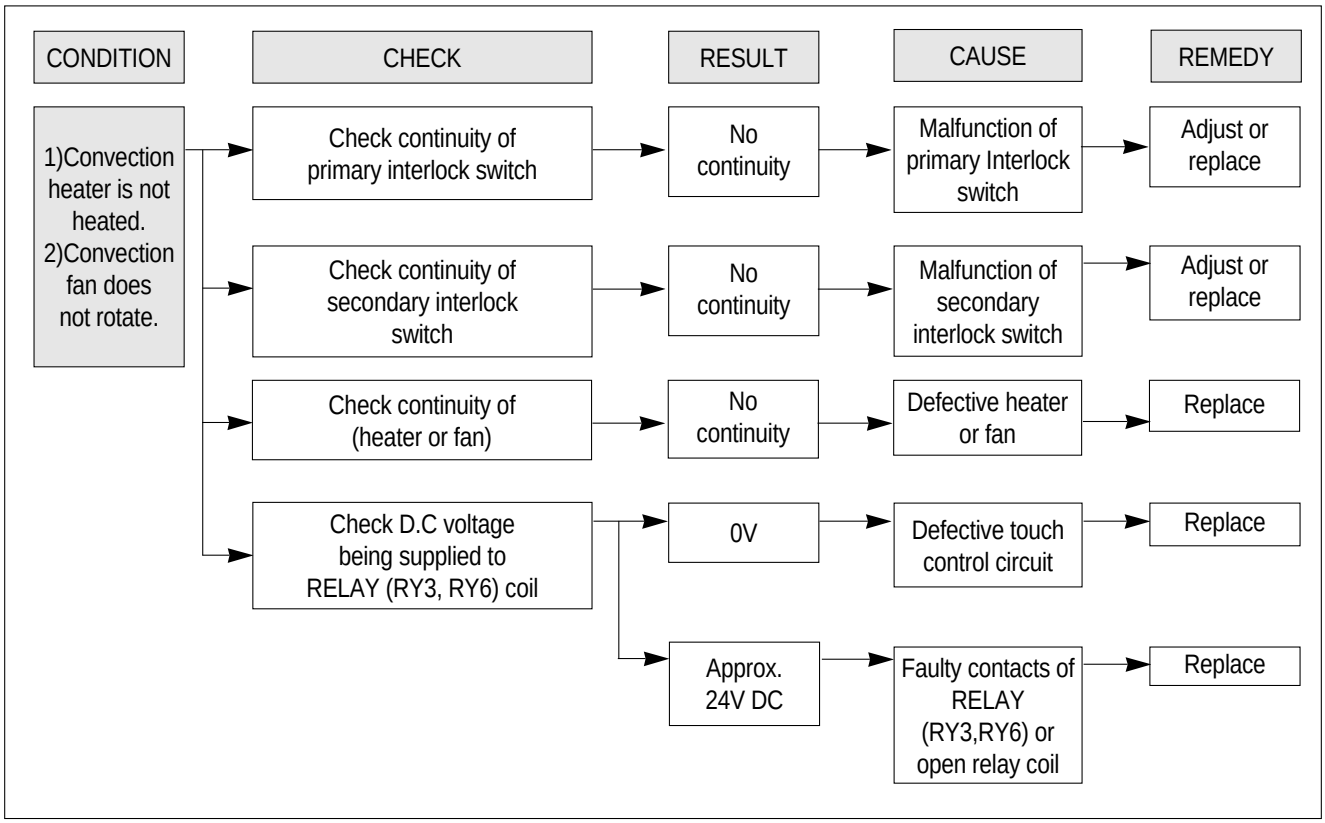
Grill heater (upper heater) is not heated; food will not become hot.



(TROUBLE 5)

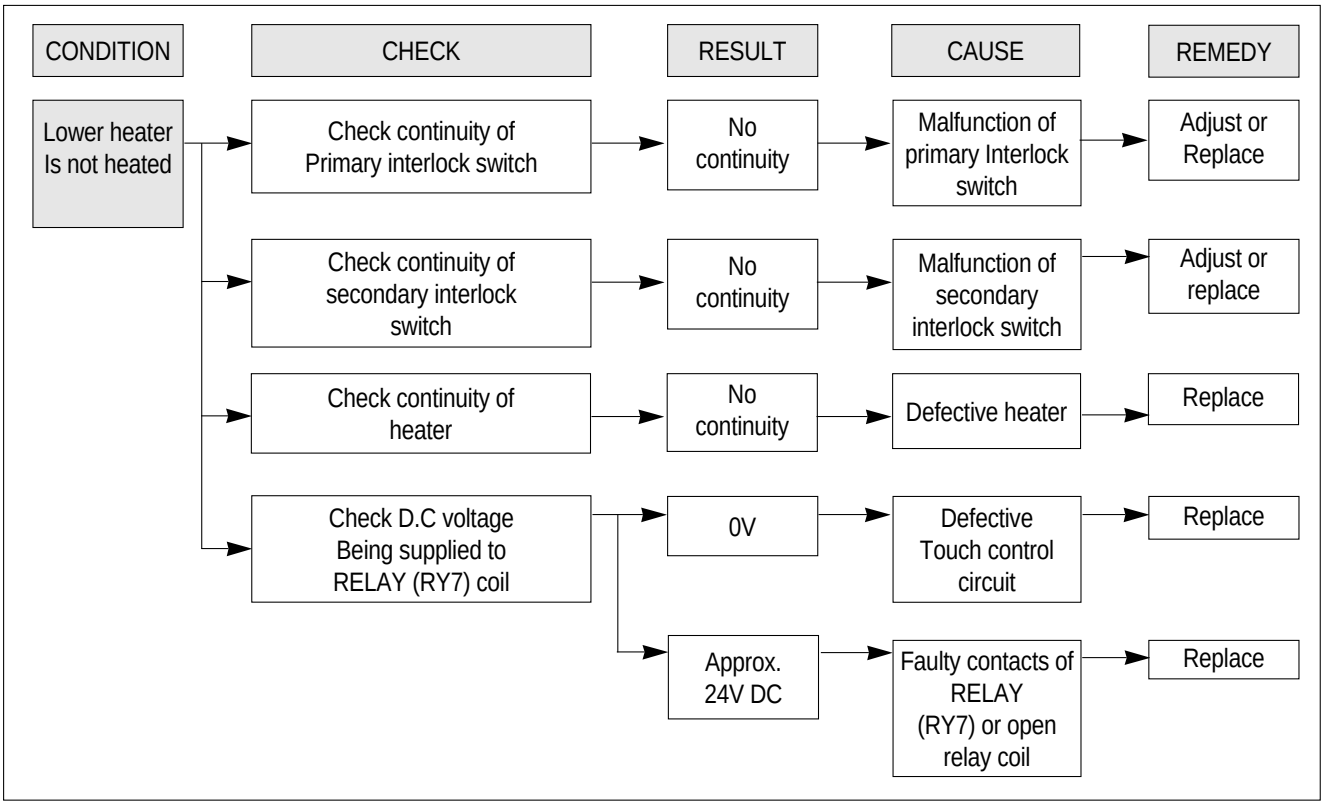
1) Convection heater is not heated; food will not become hot.

2) Convection fan motor does no rotate.



(TROUBLE 6)

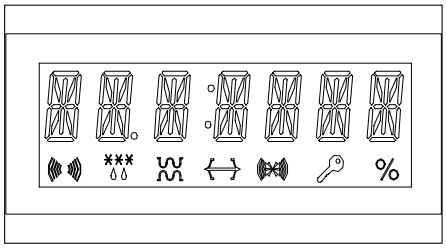
Lower heater is not heated; food will not become hot.

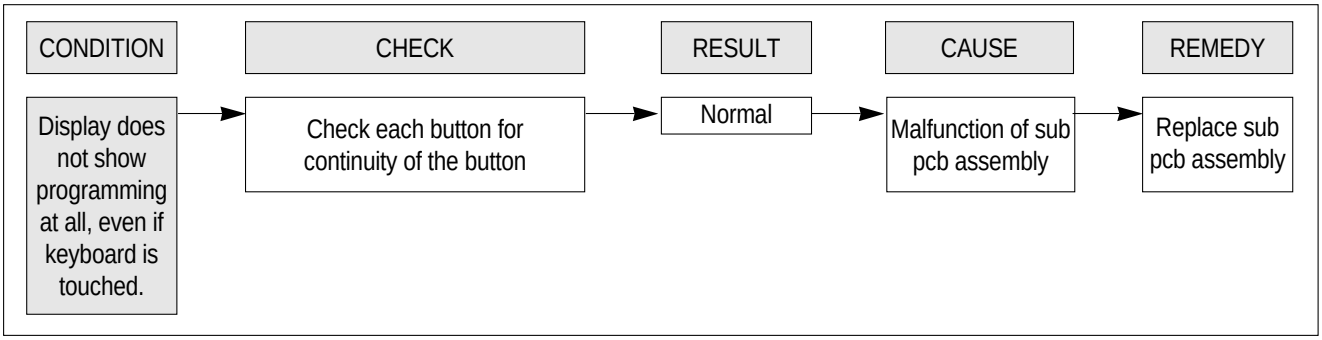


(TROUBLE 7)

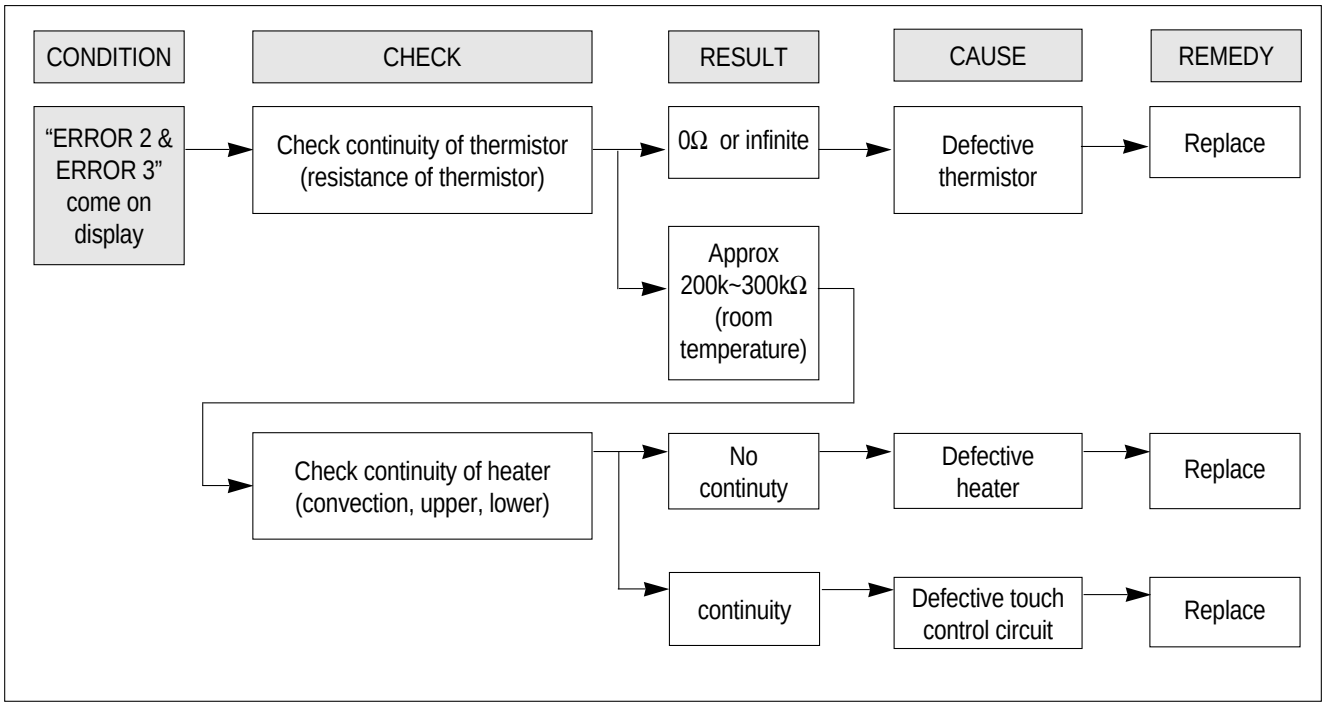
The following visual conditions indicate a probable defective touch control Circuit or button P.C.B. assembly

1. Incomplete segments.
   1) segment missing
   2) partial segments missing
   3) digit flickering other than normal fluorescent slight flickering
2. A distinct change in the brightness of one or more numbers exists in the display
3. One or more digits in the display are not on when they should be.
4. Display does not count down or up with time cooking or clock operation.
5. Oven is programmable and cooks normally but no display shows.
6. Display obviously jumps in time while counting down.
7. Display counts down noticeably too fast while cooking.
8. Display does not show the time of day when clear button is touched.





(TROUBLE 8)
When “ERROR 2 ERROR 3” come on display.



9. MEASUREMENT AND TEST

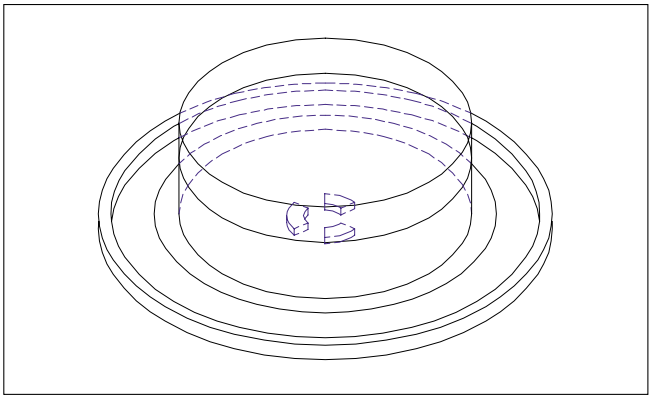
1. MEASUREMENT OF THE MICROWAVE POWER OUTPUT

Microwave output power can be checked by indirectly measuring the temperature rise of a certain amount of water exposed to the microwave as directed below.

PROCEDURE

1. A cylindrical container of borosilicate glass is used for the test. It has a maximum thickness of 3mm, an external diameter of approximately 190mm and a height of approximately 90mm.
   The mass of the container is determined.
2. At the start of the test, the oven and the empty container are at ambient temperature. Water having an initial temperature of 10˚C ± 1˚C is used for the test. The water temperature is measured immediately before it is poured into the container.
3. A quantity of 1000g ± 5g of water is added to the container and its actual mass obtained.
   The container is then immediately placed in the centre of the oven shelf, which is in its lowest normal position. The oven is operated and the time for the water temperature to attain 20˚C ± 2˚C is measured. The oven is then switched off and the final water temperature is measured within 60s.

   NOTE 1 - The water stirred is before its temperature is measured.
   NOTE 2 - Stirring and measuring devices are to have a low heat capacity.



4. The microwave power output is calculated from the formula

$$P = 4{,}187 \cdot m_W (T_2 - T_1) + 0.55 \cdot m_C (T_2 - T_0)/t$$

where
P is the microwave power output, in watts ;
m_W is the mass of the water, in grams ;
m_C is the mass of the container, in grams ;
T_0 is ambient temperature, in degrees Celsius ;
T_1 is the initial temperature of the water, in degree Celsius ;
T_2 is the final temperature of the water, in degrees Celsius ;
t is the heating time, in seconds, excluding the magnetron filament heating-up time.

∗ The microwave power output is stated in watts, rounded off to the nearest 50W

CAUTION
1. Water load should be measured exactly to 1 liter.
2. Input power voltage should be exactly specified voltage (Refer to SPECIFICATIONS).
3. Ambient temperature should be 20 ± 2˚C (68 ± 3.6˚F)

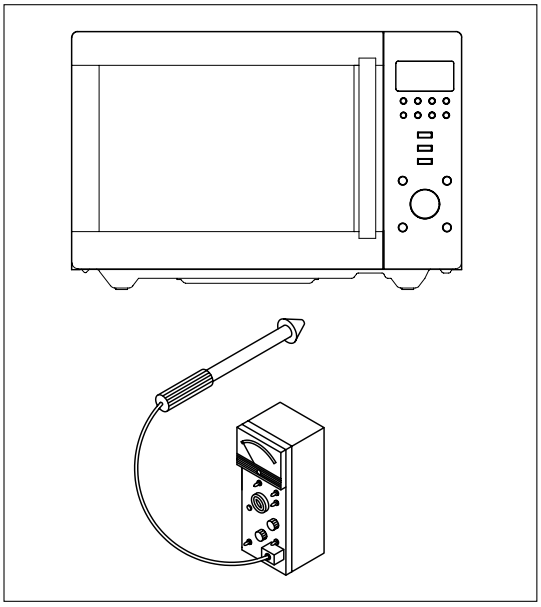
∗ Heating time for power output: ($T_2 = T_0$)

A (second)	70	64	60	56	52	49	47	44	42	40	38
B (W)	600	650	700	750	800	850	900	950	1000	1050	1100

2. MICROWAVE RADIATION TEST

WARNING
1. Make sure to check the microwave leakage before and after repair of adjustment.
2. Always start measuring of an unknown field to assure safety for operating personnel from microwave energy.
3. Do not place your hands into any suspected microwave radiation field unless the safe density level is known.
4. Care should be taken not to place the eyes in direct line with the source of microwave energy.
5. Slowly approach the unit under test until the radiometer reads an appreciable microwave leakage from the unit under the test.

PROCEDURE



1. Prepare Microwave Energy Survey Meter, 600cc glass beaker, and glass thermometer 100°C (212°F).

2. Pour 275cc ± 15cc of tap water initially at 20 ± 5°C (68 ± 9°F) in the 600 cc glass beaker with an inside diameter of approx. 85 mm(3.5 in.).

3. Place it at the center of the tray and set it in a cavity.

4. Close the door and operate the oven.

5. Measure the leakage by using Microwave Energy Survey Meter with dual ranges, set to 2450MHz.
   1) Measured radiation leakage must not exceed the value prescribed below. Leakage for a fully assembled oven with door normally closed must be less than 4mW/Cm^2.
   2) When measuring the leakage, always use the 5 cm (2 in.) space cone with probe. Hold the probe perpendicular to the cabinet and door. Place the space cone of the probe on the door, cabinet, door seem, door viewing screen, the exhaust air vents and the suction air vents.
   3) Measuring should be in a counter-clockwise direction at a rate of 1 in./sec. If the leakage of the cabinet door seem is unknown, move the probe more slowly.
   4) When measuring near a corner of the door, keep the probe perpendicular to the areas making sure the probe end at the base of the cone does not get closer than 2 in. from any metal. If it does not, erroneous reading may result.

3. COMPONENT TEST PROCEDURE

- High voltage is present at the high voltage terminal of the high voltage transformer during any cooking cycle.
- It is neither necessary nor advisable to attempt measurement of the high voltage.
- Before touching any oven components or wiring, always unplug the oven from its power source and discharge the capacitor.

1. High voltage transformer

1) Remove connections from the transformer terminals and check continuity.
2) Normal readings should be as follows :
   Secondary winding ... Approx. 100 Ω 10%
   Filament winding ... Approx. 0 Ω
   Primary winding ... Approx. 1.2 Ω

2. High voltage capacitor

1) Check continuity of capacitor with meter on the highest OHM scale.
2) A normal capacitor will show continuity for a short time, and then indicate 10MΩ once the capacitor charged.
3) A shorted capacitor will show continuous continuity.
4) An open capacitor will show constant 10MΩ.
5) Resistance between each terminal and chassis should be infinite.

3. High voltage diode

1) Isolate the diode from the circuit by disconnecting the leads.
2) With the ohmmeter set on the highest resistance scale measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-back resistance of the diode, otherwise an infinite resistance may be read in both directions. A normal diode's resistance will be infinite in one direction and several hundred kΩ in the other direction.

4. Magnetron

For complete magnetron diagnosis, refer to "Measurement of the Microwave Power Output." Continuity checks can only indicate and open filament or a shorted magnetron. To diagnose for an open filament or a shorted magnetron,
1) Isolate magnetron from the circuit by disconnecting the leads.
2) A continuity check across magnetron filament terminals should indicate 0.1Ω or less.
3) A continuity check between each filament terminal and magnetron case should read open.

5. Fuse

If the fuse in the primary and monitor switch circuit is blown when the door is opened, check the primary and monitor switch before replacing the blown fuse. In case the fuse is blown by an improper switch operation, replace the defective switch and fuse at the same time. Replace just the fuse if the switches operate normally.

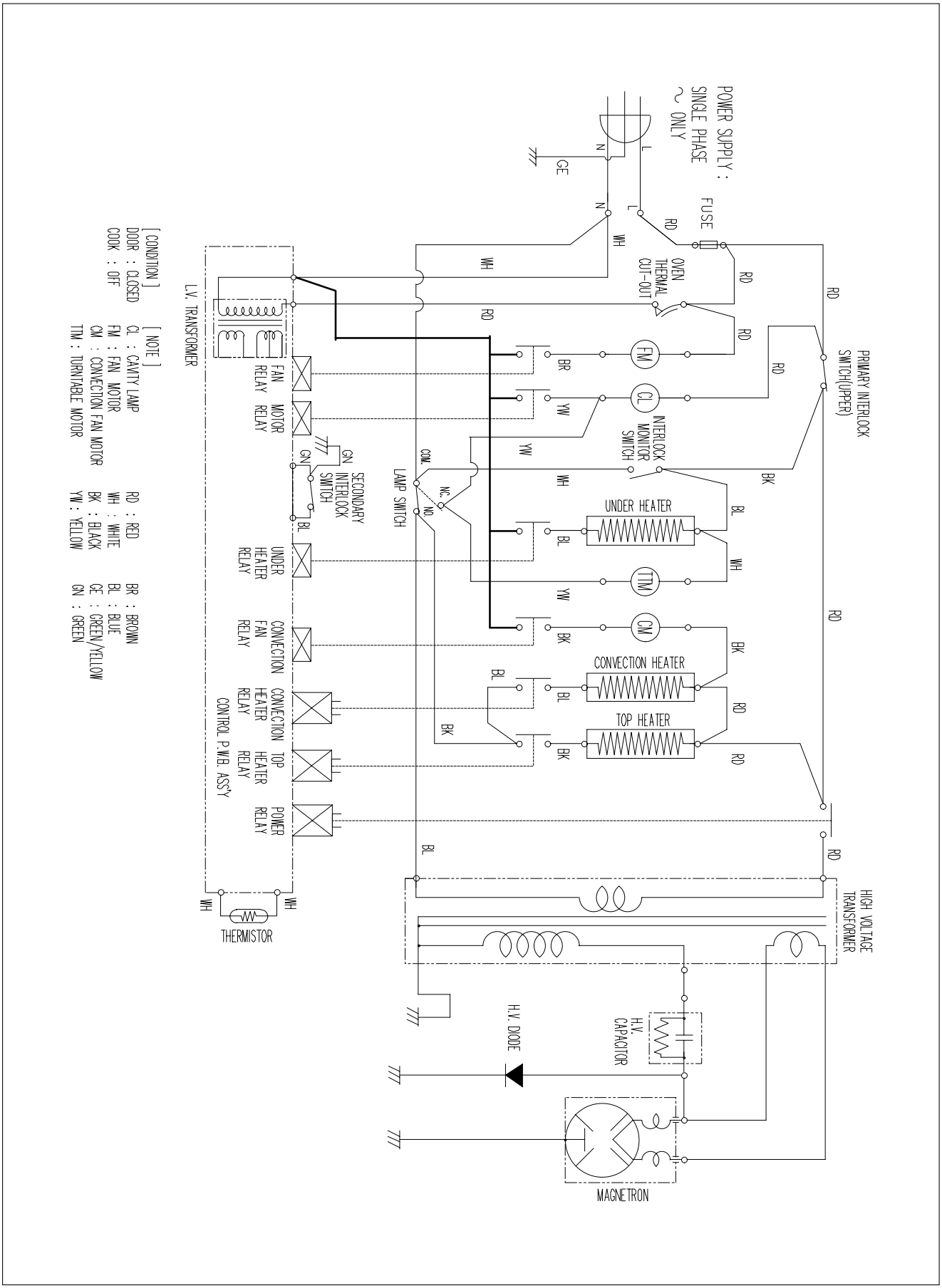
6. Interlock switches

1) You can test continuity of safety interlock and monitor switch by using ohmmeter.
2) The switch peration is checked by zero/unlimited.
   The meter should indicate zero resistance.
3) The sequence of check is interlock monitor switch, primary and secondary interlock switches check.

4. COMPONENT ACTION

COOKING MODE		MAGNE-TRON	UPPER ELEMENT	LOWER ELEMENT	REAR ELEMENT	CONVEC-TION FAN
MANUAL MODE	M/W	●				
	GRILL-1		●			
	GRILL-2			●		
	GRILL-3		●	●		
	COMBI-1	●	●	●	●	●
	COMBI-2	●	●	●	●	●
	COMBI-3		●	●	●	●
	COMBI-4	●	●			
	COMBI-5	●	●	●		
	CONVECTION100~130				●	●
	CONVECTION140~150			●	●	●
	CONVECTION160~250		●	●	●	●
ONE TOUCH	CAKE/BREAD	●	●	●	●	●
	CRUSTY	●	●	●	●	●
AUTO MODE	ROAST BEEF	●	●	●	●	●
	ROAST CHICKEN	●	●	●	●	●
	ROAST PORK	●	●	●	●	●
	BAKED FISH	●	●	●	●	●
	BAKED POTATO	●	●	●	●	●
	BAKED POTATO	●	●	●	●	●
	ROAST POTATO	●	●	●	●	●
	FRESH VEGETABLES	●				
	FROZEN VEGETABLES	●				
	CASSEROLE	●				

10. WIRING DIAGRAM



11. EXPLODED VIEW AND PARTS LIST

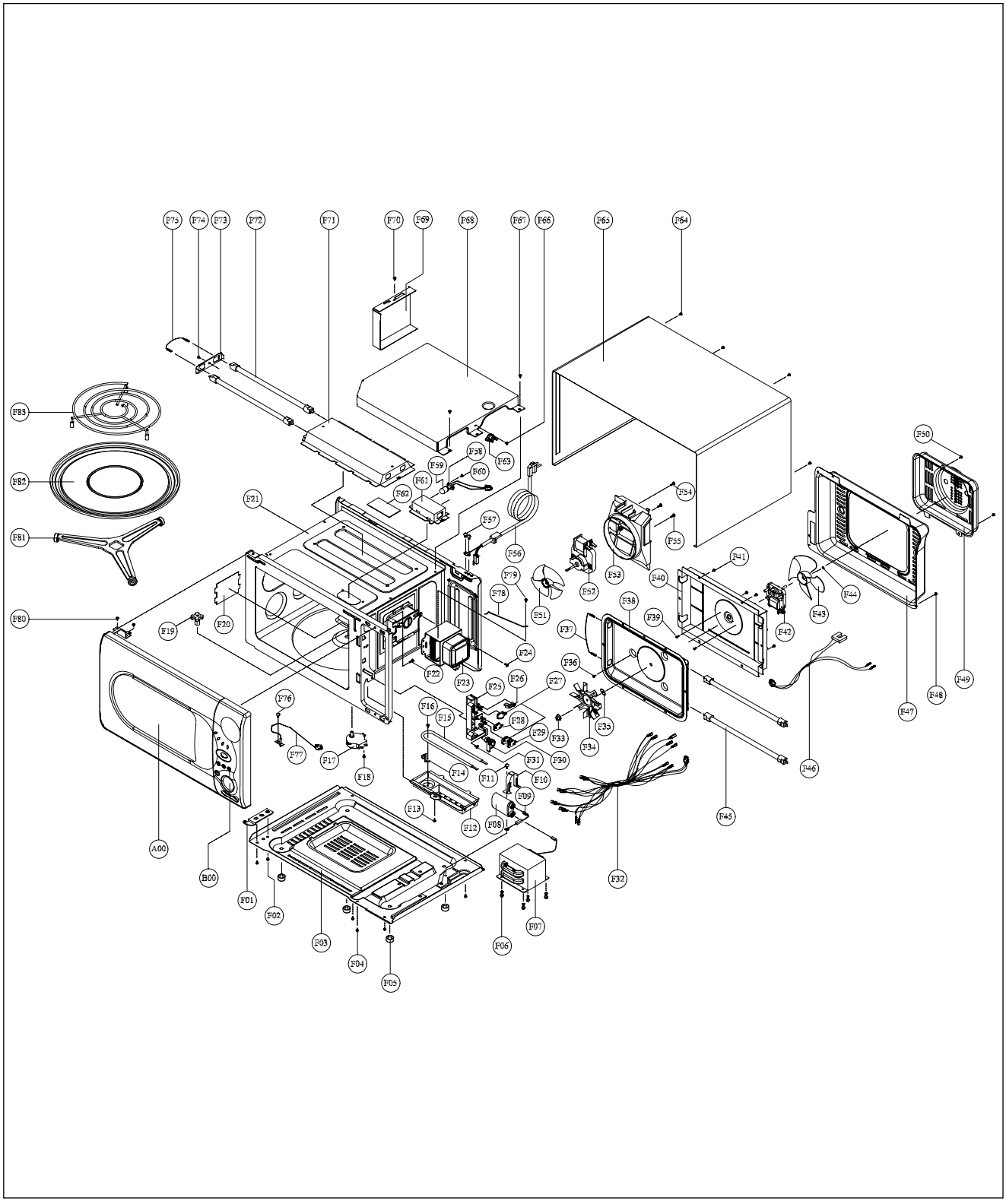
1. DOOR ASSEMBLY

Refer to 6. Disassembly and assembly.

2. CONTROL PANEL ASSEMBLY

Refer to 6. Disassembly and assembly.

3. TOTAL ASSEMBLY



NO	PART CODE	PART NAME	DESCRIPTION	Q'TY	
A00	3511714000	DOOR AS	KOC-1B0K0S	1	KOC-1B0K9A27
	3511714070		KOC-1B4K9A		KOC-1B4K9A27
B00	PKCPSWLG40	CONTROL-PANEL AS	KOC-1B0K9A27	1	MEXICO
	PKCPSWAD40		KOC-1B4K9A		KOC-1B4K9A27
F01	3515202800	STOPPER HINGE *U AS	KOR-121M0A	1	
F02	7272400811	SCREW TAPTITE	TT3 TRS 4X8 MFZN	1	
F03	3510313500	BASE	SBHG T0.8	1	
F04	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	5	
F05	3512101400	FOOT	DASF-310	4	
F06	7147401011	SCREW TAPPING	T2 FLG HEX 4X10 MFZN	4	
F07	3518121600	TRANS HV	DT-R11A0-1BT S	1	
F08	3518303500	CAPACITOR HV	2100VAC 1.05UF #187	1	
F09	3518400400	DIODE HV	HVR-1X-3AB 12KV #187	1	
F10	3513003200	HOLDER HV CAPACITOR	SECC T0.6	1	
F11	7S422X4081	SCREW SPECIAL	TT3 TRS 4X8 SE MFZN	1	
F12	3511407500	COVER HEATER *U	STS430 T0.5	1	
F13	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F14	3515304000	SUPPORTER HEATER *U	STS430 T0.5	1	
F15	3512802000	HEATER *U	120V 400W 1SOPE4543002	1	
F16	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	1	
F17	3966031110	MOTOR SYNCRO	120V 60HZ 2W KX63MQ2AD	1	
F18	7121400611	SCREW TAPPING	T2S PAN 4X6 MFZN	1	
F19	3517401900	COUPLER	PTFE	1	
F20	3511408300	COVER WAVE GUIDE	MICA T0.35	1	
F21	3516112200	CAVITY AS	KOC-1B0K0S	1	
F22	7122401211	SCREW TAPPING	T2S TRS 4X12 MFZN	1	
F23	3518002900	MAGNETRON	2M218J(F)P	1	
F24	3516004000	SPECIAL SCREW	T2 BOLT FLANGE 5X12 DACRO	1	
F25	3513817000	LOCK	PP	1	
F26	3513702100	LEVER SW MICRO	POM,KOG-846T0S	1	
F27	4415A17352	SW MICRO	VP-533A-OF SPNO #187 200G	2	
F28	4415A66600	SW MICRO	VP-532A-0F SPNC	1	
F29	4415A66910	SW MICRO	VP-531A-OF/SZM-V16-FA-61	1	
F30	3513700800	LEVER LOCK	POM	1	
F31	7112401211	SCREW TAPPING	T2S TRS 4*12 MFZN	1	
F32	3512718430	HARNESS MAIN	KOC-1B4K9A	1	
F33	7S627W40X1	SPECIAL SCREW	NUT FLANGE M4 MFZN	1	
F34	3511800700	FAN CONVECTION	SA1D-80 T0.5	1	
F35	7400104011	WASHER PLAIN	PW-1-4 MFZN	1	
F36	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	1	
F37	3512766800	HARNESS CONVEC *A	KOC-1B0K0S	1	
F38	3511407700	COVER HEATER *B	SA1D-80 T0.5	1	
F39	7601400811	SCREW MACHINE	PAN 4X8 PW MFZN	2	
F40	3513302900	INSULATOR HEATER *B	SBHG-1 T0.5	1	

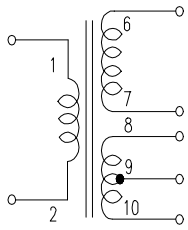
NO	PART CODE	PART NAME	DESCRIPTION	Q'TY	
F41	7113400814	SCREW TAPPING	T1 BIN 4X8 MFNI	4	
F42	3963513010	MOTOR SHADED POLE	120V 60HZ MW10XA-T03	1	
F43	3511800900	FAN	PBT	1	
F44	7402704600	RING C	CR-5 SK5	1	
F45	3512803800	HEATER MIRACLON	60V 550W 270MM	2	
F46	3512766900	HARNESS CONVEC *B	KOC-1B0K0S	1	
F47	3511407400	COVER *B	SA1D-80 T0.5	1	
F48	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F49	3511407300	COVER MOTOR *B	SA1D-80 T0.5	1	
F50	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F51	3511800100	FAN	P.P GF20	1	
F52	3963514300	MOTOR SHADED POLE	120V 60HZ MW10XA-B01	1	
F53	3512515300	GUIDE WIND	PP	1	
F54	7122401211	SCREW TAPPING	T2S TRS 4X12 MFZN	1	
F55	7121402511	SCREW TAPPING	T2S PAN 4X25 MFZN	2	
F56	35113F5Q05	CORD POWER AS	3X1.0 80X80 120-RTML 1.8M	1	
F57	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F58	3513003910	HOLDER LAMP AS	KOC-1B0K5A	1	
F59	3513602600	LAMP	HALOGEN 120V 20W	1	
F60	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F61	3511407800	COVER LAMP	STS430 T0.5	1	
F62	3511407810	COVER LAMP	T/GLASS T2.0	1	
F63	3518906100	THERMOSTAT	OFF:120 ON:60 VN #187	1	
F64	7S312X40A1	SCREW SPECIAL	T1 TRS 4X10 SE MFZN	4	
F65	3510803330	CABINET	PCM T0.6 SV1401C	1	KOC-1B0K9A27
	3510803320		PCM T0.6 HL		KOC-1B4K9A27
F66	7121400611	SCREW TAPPING	T2S PAN 4X6 MFZN	1	
F67	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	2	
F68	3513302800	INSULATOR HEATER *T	SECC T0.5	1	
F69	3512520500	GUIDE AIR OUTLET	SA1D-80 T0.5	1	
F70	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F71	3511407600	COVER HEATER *T	STS430 T0.5	1	
F72	3512804710	HEATER MIRACLON	64V 550W 270M	2	
F73	3510607700	BRACKET HEATER *T	SA1D-80 T0.5	1	
F74	7S432X4081	SCREW SPECIAL	TT3 TRS 4*8 MFZN	1	
F75	3512767000	HARNESS HEATER	KOC-1B0K0S	1	
F76	3514801400	SENSOR TEMPERATURE	PTM-K312-D7	1	
F77	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F78	3515308500	SUPPORTER WIRE	SWRH D=2.0	1	
F79	7112401011	SCREW TAPPING	T1 TRS 4*10 MFZN	1	
F80	3516003700	SPECIAL SCREW	TT3 HEX 4X8 FLG MFZN	2	
F81	3512521000	GUIDE ROLLER AS	KOC-1B0K0S	1	
F82	3517211100	TRAY METAL AS	KOC-1B0K0S	1	
F83	3517207310	TRAY RACK AS	KOC-1B0K0S 30MM	1	

12. PRINTED CIRCUIT BOARD (KOC-1B0K9A27)

CIRCUIT CHECK PROCEDURE

1. Low voltage transformer check

The low voltage transformer is located on the P.C.B.
Measuring condition: Input voltage: 120V / Frequency: 60Hz

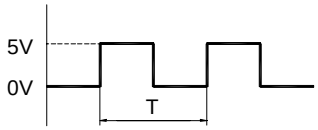
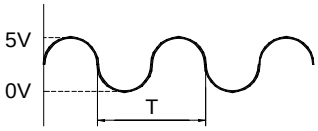


Terminal	Voltage(load)	Voltage(no load)
6-7	AC 17.0 V	AC 19.9 V
8-9	AC 1.3 V	AC 1.6 V
9-10	AC 1.3 V	AC 1.6 V

NOTE
1. Secondary side voltage of the low voltage transformer changes in proportion to fluctuation of power source voltage.
2. The allowable tolerance of the secondary voltage is within ± 5% of nominal voltage.

2. Voltage Check

- Key check point

NO	CHECK POINT	REMARK
1	IC1 PIN 63, 64	5VDC±5%
2	IC1 PIN 38	 T: 16.67ms(60Hz)
3	IC1 PIN 33 OR 34	 T : 250 ns(4MHz)

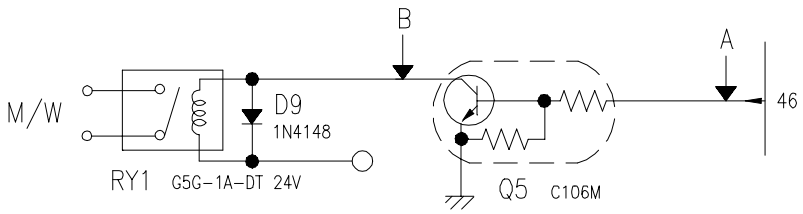
- Check method

NO	MEASURE POINT	WAVE FORM	REMEDY	REMARK
1	A	DC 5V±5%	Replace ZD3, EC1	NO LOAD
2	B	DC 24V±20%	Replace D20-23, EC6	NO LOAD

NOTE: Each measure point must be measured with GND points.

3. Case of no microwave oscillation

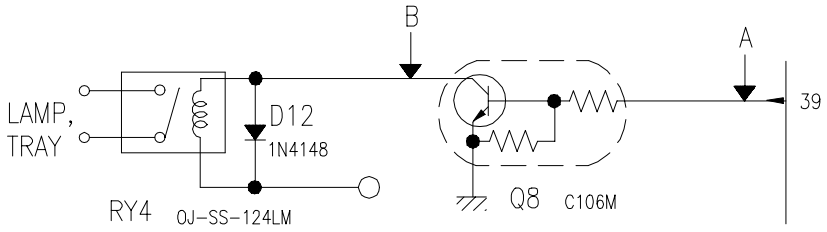
1) When touching M/W button, oven lamp turns on and Fan motor and turntable rotate, and cook indicator in display comes on.
*Cause: **RELAY 1** does not operate.



- Check method

STATE	POINT A	POINT B
RELAY 1 ON	+5V DC	GND
RELAY 1 OFF	GND	+24V DC

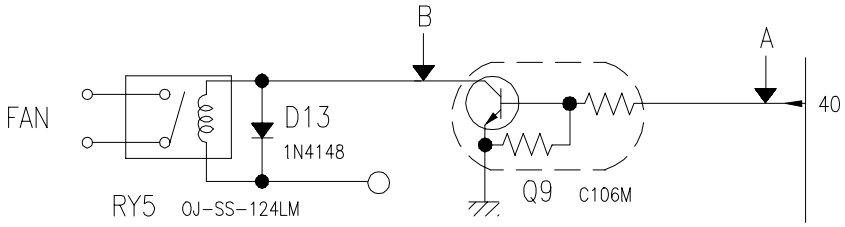
2) When touching M/W button, oven lamp does not turn on and turntable motor does not rotate but cook indicator in display comes on.
*Cause: **RELAY 4** does not operate.



- Check method

STATE	POINT A	POINT B
RELAY 4 ON	+5V DC	GND
RELAY 4 OFF	GND	+24V DC

3) When touching M/W button, oven lamp turns on and fan motor does not rotate but cook indicator in display comes on.
*Cause: **RELAY 5** does not operate.



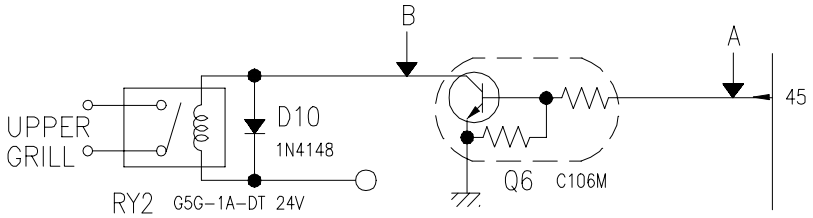
- Check method

STATE	POINT A	POINT B
RELAY 5 ON	+5V DC	GND
RELAY 5 OFF	GND	+24V DC

4. Case of no heating of upper grill

When touching GRILL1 & COMBI button, oven lamp turns on and Fan motor and turntable motor rotate and cook indicator in the display comes on.

*Cause: **RELAY 2** does not operate.

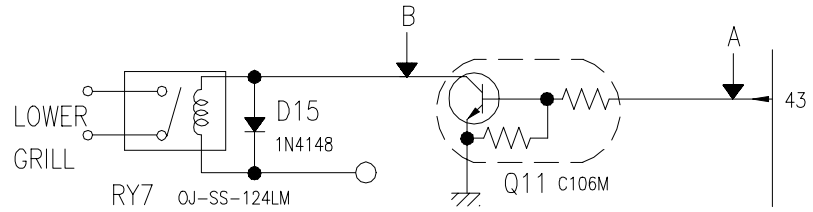


STATE	POINT A	POINT B
RELAY 2 ON	+5V DC	GND
RELAY 2 OFF	GND	+24V DC

5**. Case of no heating of lower grill**

When touching GRILL2 & COMBI button, oven lamp turns on and Fan motor and turntable motor rotate and cook indicator in display comes on.

*Cause: **RELAY 7** does not operate.

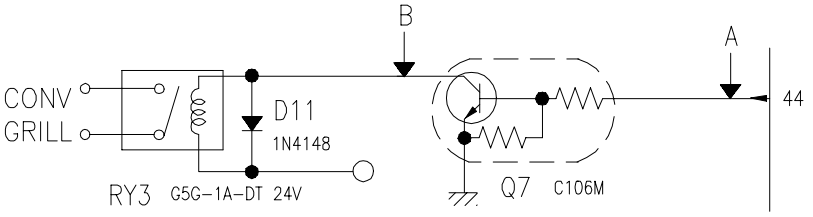


STATE	POINT A	POINT B
RELAY 7 ON	+5V DC	GND
RELAY 7 OFF	GND	+24V DC

6**. Case of no heating of convection grill**

When touching CONVECTION button, oven lamp turns on and Fan motor and turntable motor rotate and cook indicator in the display comes on.

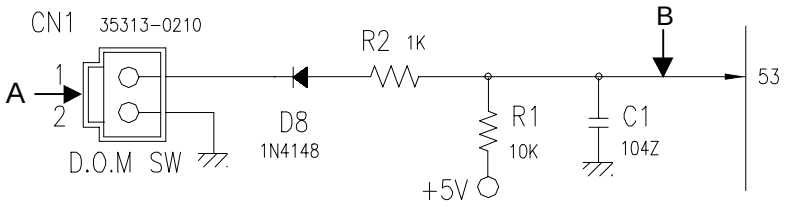
*Cause: **RELAY 3** does not operate.



STATE	POINT A	POINT B
RELAY 3 ON	+5V DC	GND
RELAY 3 OFF	GND	+24V DC

7. Case of no stopping of the count down timer

When the door is opened during operation, the count down timer does not stop.

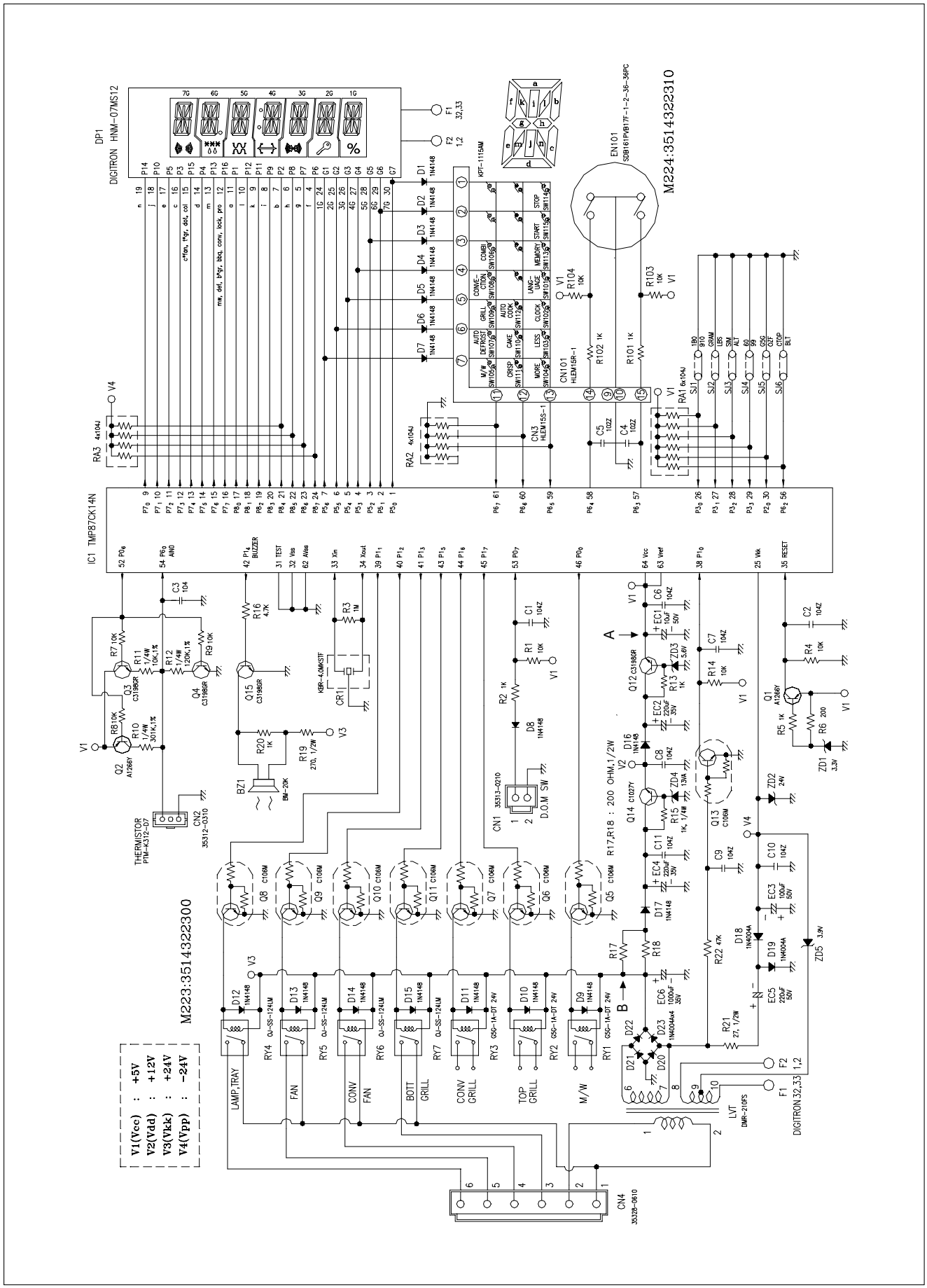


- Check method

STATE \ POINT	A	B
DOOR OPEN	OPEN	+5V DC
DOOR CLOSED	CLOSE	GND

CHECK NO	METHOD	REMEDY
1	Check the stage(ON,OFF) of the door open monitor switch by resistance measurement.	Replace door open monitor swith.

13. P.C.B. CIRCUIT DIAGRAM



PCB ASS'Y PART LIST

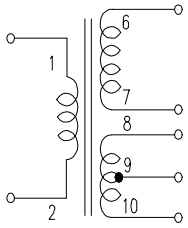
NO	NAME	SYMBOL	SPECIFCATION	PART CODE	Q'TY
1	PCB MAIN	M223	95.5 X 197	3514322300	1
2	PCB SUB	M224	90 X 197	3514322310	1
3	BUZZER	BZ1	BM-20K	3515600100	1
4	CAPACITOR CERAMIC	C1~C3,C6~C11	104 50V Z AXIAL	CCZF1H104Z	9
5	CAPACITOR CERAMIC	C4,C5	102 50V Z AXIAL	CCZB1H102K	2
6	CAPACITOR ELECTRO	EC1	50V RS 10uF	CEXE1H100A	1
7	CAPACITOR ELECTRO	EC2,EC4	35V RSS 220uF	CEXF1V221V	2
8	CAPACITOR ELECTRO	EC6	35V RSS 1000uF	CEXF1V102V	1
9	CAPACITOR ELECTRO	EC5	50V RSS 220uF	CEXF1H221V	1
10	CAPACITOR ELECTRO	EC3	50V RSS 100uF	CEXF1H101V	1
11	CONNECTOR FILM	CN3	HLEM15S-1	4CW215SBD0	1
12	CONNECTOR WAFER	CN1	35313-0210	30166M7020	1
13	CONNECTOR WAFER	CN2	35312-0310	30166M5030	1
14	CONNECTOR WAFER	CN4	35328-0610	4CW3061MX0	1
15	DIODE SWITCHING	D1~D17	1N4148 AUTO 52mm	DZN4148---	17
16	DIODE RECTIFYING	D18~D23	1N4004A AUTO 52mm	DZN4004A--	6
17	DIODE ZENER	ZD1	UZ -3.3BSB	DZUZ3R3BSB	1
18	DIODE ZENER	ZD5	UZ -3.9BSB	DZUZ3R9BSB	1
19	DIODE ZENER	ZD3	UZ -5.6BSB	DZUZ5R6BSB	1
20	DIODE ZENER	ZD4	UZ -13BSA	DZUZ13BSA-	1
21	DIODE ZENER	ZD2	UZ -24BSB	DZUZ24BSB-	1
22	DIGITRON	DP1	HNM-07MS12	DHNM07MS12	1
23	HOLDER VFD	DPH	NYLON 66	3513002000	1
24	IC MICOM	IC1	TMP87CK14N-1N67	13GS1B0K00	1
25	RESISTOR	R1,R4,R7~R9,R14	1/6W 10K Ohm 5%	RD-AZ103J-	6
26	RESISTOR	R2,R5,R13,R20	1/6W 1K Ohm 5%	RD-AZ102J-	4
27	RESISTOR	R6	1/6W 200 Ohm 5%	RD-AZ201J-	1
28	RESISTOR	R3	1/6W 1M Ohm 5%	RD-AZ105J-	1
29	RESISTOR	R16	1/6W 4.7K Ohm 5%	RD-AZ472J-	1
30	RESISTOR	R22	1/6W 47K Ohm 5%	RD-AZ473J-	1
31	RESISTOR	R15	1/4W 1K Ohm 5%	RD-4Z102J-	1
32	RESISTOR	R19	1/2W 270 Ohm 5%	RD-2Z271JS	1
33	RESISTOR	R21	1/2W 27 Ohm 5%	RD-2Z270JS	1
34	RESISTOR	R17	1/2W 200 Ohm 5%	RD-2Z201JS	1
35	RESISTOR	R18	1/2W 200 Ohm 5%	RD-2Z201JS	1
36	RESISTOR	R10	1/4W 301K Ohm 1%	RN-4Z3013F	1
37	RESISTOR	R11	1/4W 10K Ohm 1%	RN-4Z1002F	1
38	RESISTOR	R12	1/4W 120K Ohm 1%	RN-4Z1203F	1
39	RESISTOR ARRAY	RA1	7P(6) 1/8 100K 5%	RA-87X104J	1
40	RESISTOR ARRAY	RA2,RA3	5P(4) 1/8 100K 5%	RA-85X104J	2
41	RESONATOR CERAMIC	CR1	KBR-4.0MKSTF	5PKBR40MKS	1
42	SW RELAY	RY1~RA3	G5G-1A-DT 24V	5SC0101124	3
43	SW RELAY	RA4~RA7	OJ-SS-124LM	5SC0101405	4
44	TRANSISTOR	Q1,Q2	KTA1266Y AUTO	TZTA1266Y-	2
45	TRANSISTOR	Q3,Q4,Q12,Q15	KTC3198GR AUTO	TZTC3198GR	4
46	TRANSISTOR	Q14	KTC-1027Y AUTO	TZTC1027Y-	1
47	TRANSISTOR	Q5~Q11,Q13	KRC106M AUTO	TZRC106M--	8
48	TRANS POWER	LVT1	DMR-210P	5EPU041351	1
49	THERMISTOR		PTM-K312-D7	3514801400	1
50	CONNECTOR WAFER	CN101	HLEM15R-1	4CW215RBD0	1
51	RESISTOR	R101,R102	1/6W 1K Ohm 5%	RD-AZ102J-	2
52	RESISTOR	R103,R104	1/6W 10K Ohm 5%	RD-AZ103J-	2
53	SW ROTARY	EN101	SDB161PVB17F-1-2-36-36PC(PITCH5)	5S10109002	1
54	SW TACT	SW101~SW115	KPT-1115AM	5S50101Z93	15
55	WIRE FLAT	WF1	1.25X15X90XC	WSJ-159007	1

12. PRINTED CIRCUIT BOARD (KOC-1B4K9A27)

CIRCUIT CHECK PROCEDURE

1. Low voltage transformer check

The low voltage transformer is located on the P.C.B.
Measuring condition: Input voltage: 120V / Frequency: 60Hz

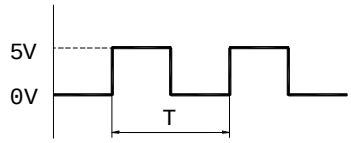
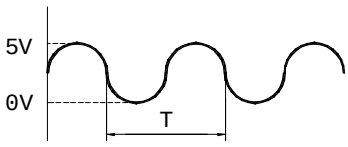


Terminal	Voltage(olad)	Voltage(no load)
6-7	AC 17.0 V	AC 19.9 V
8-9	AC 1.3 V	AC 1.6 V
9-10	AC 1.3 V	AC 1.6 V

NOTE
1. Secondary side voltage of the low voltage transformer changes in proportion to fluctuation of power source voltage.
2. The allowable tolerance of the secondary voltage is within ± 5% of nominal voltage.

2. Voltage Check

- Key check point

NO	CHECK POINT	REMARK
1	IC1 PIN 63, 64	5VDC±5%
2	IC1 PIN 38	 T : 16.67 ms(60Hz)
3	IC1 PIN 33 OR 34	 T : 250 ns(4MHz)

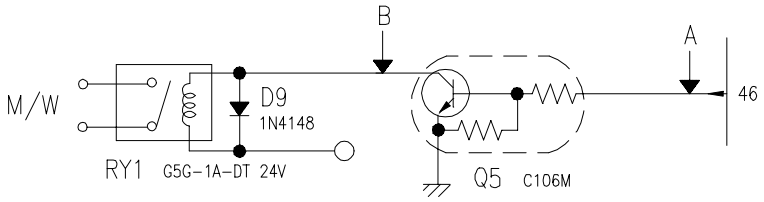
- Check method

NO	MEASURE POINT	WAVE FORM	REMEDY	REMARK
1	A	DC 5V±5%	Replace ZD2, EC1	NO LOAD
2	B	DC 24V±20%	Replace D20-23, EC6	NO LOAD

NOTE: Each measure point must be measured with GND points.
: The marks of the above corresponding voltage (+5V, +24V) are written on the PCB.

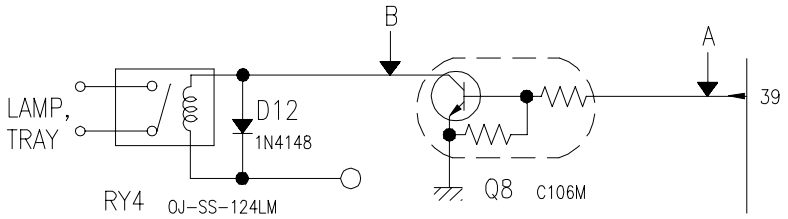
3. Case of no microwave oscillation

1) When touching M/W button, oven lamp turns on and Fan motor and turntable rotate, and cook indicator in display comes on.
   *Cause: **RELAY 1** does not operate.



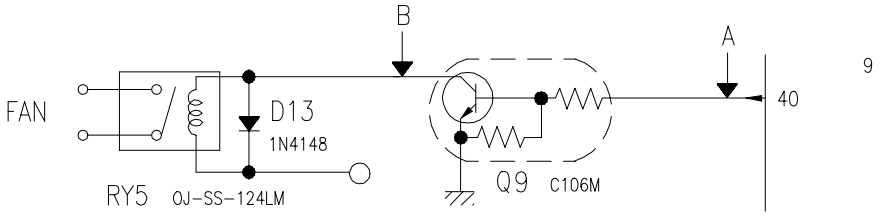
STATE	POINT A	POINT B
RELAY 1 ON	+5V DC	GND
RELAY 1 OFF	GND	+24V DC

2) When touching M/W button, oven lamp does not turn on and turntable does not rotate but cook indicator in display comes on.
   *Cause: **RELAY 1** does not operate.



STATE	POINT A	POINT B
RELAY 4 ON	+5V DC	GND
RELAY 4 OFF	GND	+24V DC

3) When touching M/W button, fan motor does not rotate but turntable rotates, oven lamp turns on and cook indicator in display comes on.
   *Cause: **RELAY 5** does not operate.

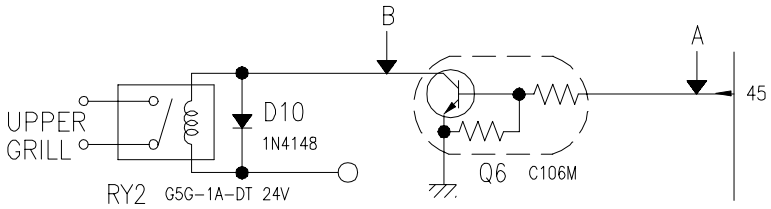


STATE	POINT A	POINT B
RELAY 5 ON	+5V DC	GND
RELAY 5 OFF	GND	+24V DC

4. Case of no heating of upper grill

When touching GRILL1 & COMBI button, oven lamp turns on and Fan motor and turntable rotate, and cook indicator in display comes on.

*Cause: **RELAY 2** does not operate.

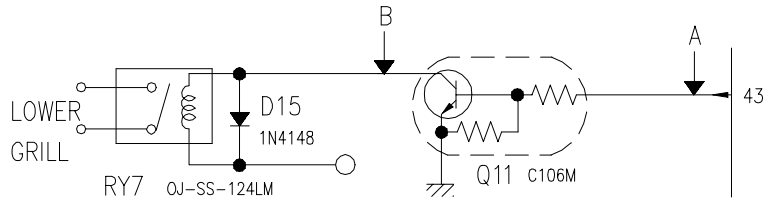


STATE	POINT A	POINT B
RELAY 2 ON	+5V DC	GND
RELAY 2 OFF	GND	+24V DC

5**. Case of no heating of lower grill**

When touching GRILL2 & COMBI button, oven lamp turns on and Fan motor and turntable rotate and cook indicator in display comes on.

*Cause: **RELAY 7** does not operate.

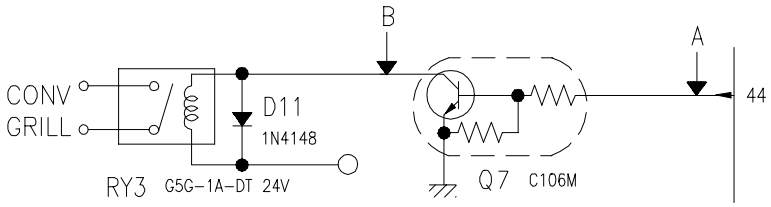


STATE	POINT A	POINT B
RELAY 7 ON	+5V DC	GND
RELAY 7 OFF	GND	+24V DC

6**. Case of no heating of convection grill**

When touching CONVECTION button, oven lamp turns on and Fan motor and turntable rotate and cook indicator in display comes on.

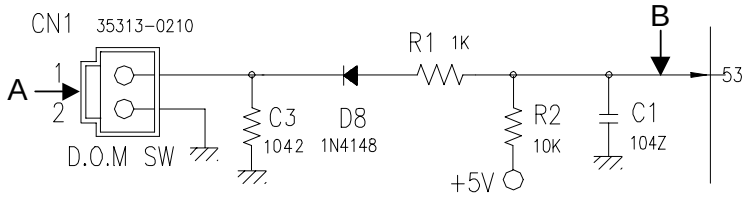
*Cause: **RELAY 3** does not operate.



STATE	POINT A	POINT B
RELAY 3 ON	+5V DC	GND
RELAY 3 OFF	GND	+24V DC

7. Case of no stopping of the count down timer

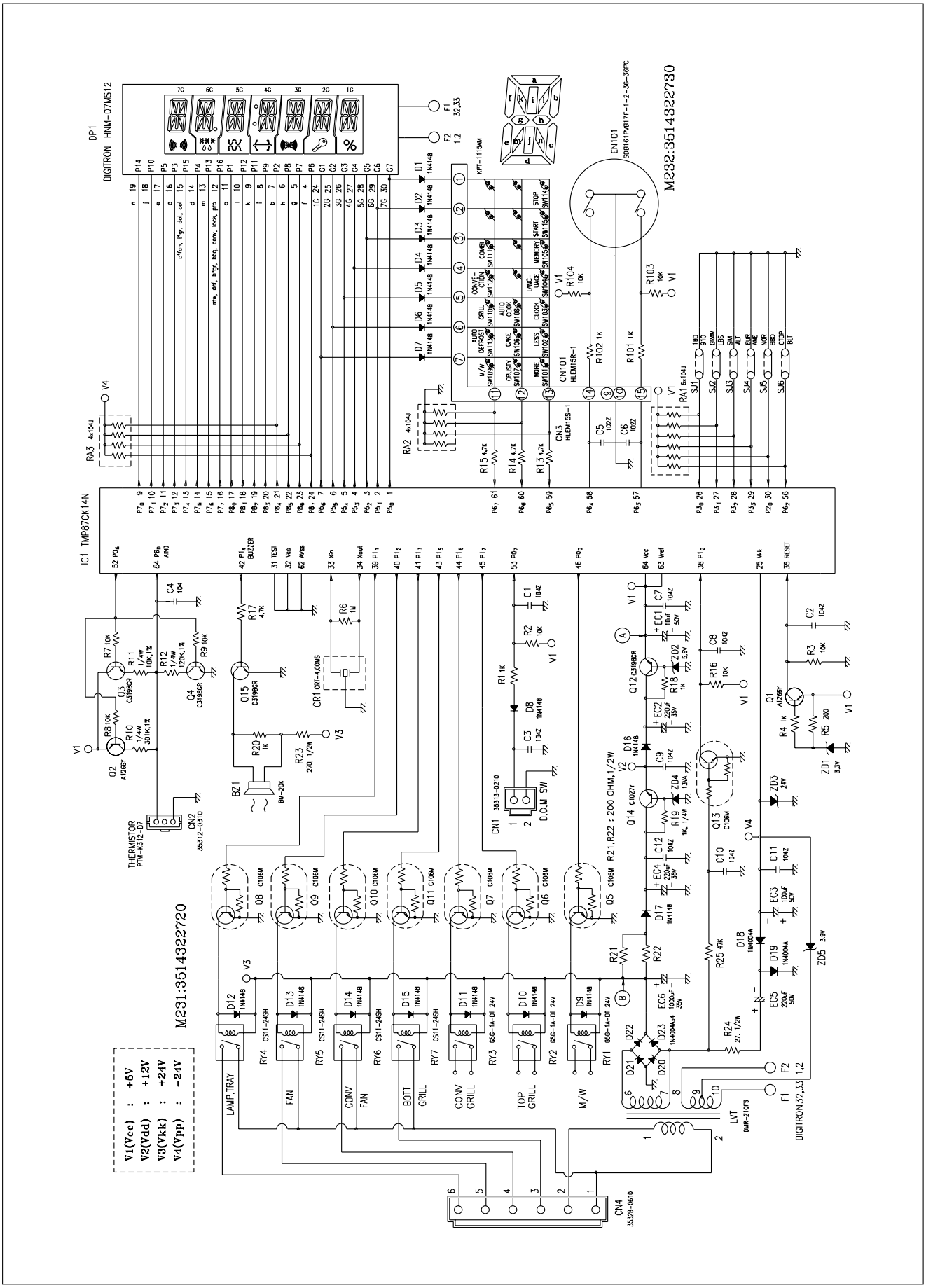
When the door is opened during operation, the count down timer does not stop.



POINT / STATE	A	B
DOOR OPEN	OPEN	+5V DC
DOOR CLOSED	CLOSE	GND

CHECK NO	METHOD	REMEDY
1	Check the stage(ON,OFF) of the door open monitor switch by resistance measurement.	Replace door open monitor swith.

13. P.C.B. CIRCUIT DIAGRAM



PCB ASS'Y PART LIST

NO	NAME	SYMBOL	SPECIFCATION	PART CODE	Q'TY
1	PCB MAIN	M231	95.5 X 197	3514322720	1
2	PCB SUB	M232	88 X 197	3514322730	1
3	BUZZER	BZ1	BM-20K	3515600100	1
4	CAPACITOR CERAMIC	C1~C4,C7~C12	104 50V Z AXIAL	CCZF1H104Z	10
5	CAPACITOR CERAMIC	C5,C6	102 50V Z AXIAL	CCZB1H102K	2
6	CAPACITOR ELECTRO	EC1	50V RS 10uF	CEXE1H100A	1
7	CAPACITOR ELECTRO	EC2,EC4	35V RSS 220uF	CEXF1V221V	2
8	CAPACITOR ELECTRO	EC6	35V RSS 1000uF	CEXF1V102V	1
9	CAPACITOR ELECTRO	EC5	50V RSS 220uF	CEXF1H221V	1
10	CAPACITOR ELECTRO	EC3	50V RSS 100uF	CEXF1H101V	1
11	CONNECTOR FILM	CN3	HLEM15S-1	4CW215SBD0	1
12	CONNECTOR WAFER	CN1	35313-0210	30166M7020	1
13	CONNECTOR WAFER	CN2	35312-0310	30166M5030	1
14	CONNECTOR WAFER	CN4	35328-0610	4CW3061MX0	1
15	DIODE SWITCHING	D1~D17	1N4148 AUTO 52mm	DZN4148---	17
16	DIODE RECTIFYING	D18~D23	1N4004A AUTO 52mm	DZN4004A--	6
17	DIODE ZENER	ZD1	UZ -3.3BSB	DZUZ3R3BSB	1
18	DIODE ZENER	ZD5	UZ -3.9BSB	DZUZ3R9BSB	1
19	DIODE ZENER	ZD2	UZ -5.6BSB	DZUZ5R6BSB	1
20	DIODE ZENER	ZD4	UZ -13BSA	DZUZ13BSA-	1
21	DIODE ZENER	ZD3	UZ -24BSB	DZUZ24BSB-	1
22	DIGITRON	DP1	HNM-07MS12	DHNM07MS12	1
23	HOLDER VFD	DPH	NYLON 66	3513002000	1
24	IC MICOM	IC1	TMP87CK14N	13GSC1B4KA	1
25	RESISTOR	R2,R3,R7~R9,R16	1/6W 10K Ohm 5%	RD-AZ103J-	6
26	RESISTOR	R1,R4,R18,R20	1/6W 1K Ohm 5%	RD-AZ102J-	4
27	RESISTOR	R5	1/6W 200 Ohm 5%	RD-AZ201J-	1
28	RESISTOR	R6	1/6W 1M Ohm 5%	RD-AZ105J-	1
29	RESISTOR	R13~R15,R17	1/6W 4.7K Ohm 5%	RD-AZ472J-	4
30	RESISTOR	R25	1/6W 47K Ohm 5%	RD-AZ473J-	1
31	RESISTOR	R19	1/4W 1K Ohm 5%	RD-4Z102J-	1
32	RESISTOR	R23	1/2W 270 Ohm 5%	RD-2Z271JS	1
33	RESISTOR	R24	1/2W 27 Ohm 5%	RD-2Z270JS	1
34	RESISTOR	R21,R22	1/2W 200 Ohm 5%	RD-2Z201JS	2
35	RESISTOR	R10	1/4W 301K Ohm 1%	RN-4Z3013F	1
36	RESISTOR	R11	1/4W 10K Ohm 1%	RN-4Z1002F	1
37	RESISTOR	R12	1/4W 120K Ohm 1%	RN-4Z1203F	1
38	RESISTOR ARRAY	RA1	7P(6) 1/8 100K 5%	RA-87X104J	1
39	RESISTOR ARRAY	RA2,RA3	5P(4) 1/8 100K 5%	RA-85X104J	2
40	RESONATOR CERAMIC	CR1	CRT-4.00MS	5P4R00MTS-	1
41	SW RELAY	RY1	G5G-1A-DT 24V	5SC0101124	1
42	SW RELAY	RY2,RY3	G5G-1A-DT 24V	5SC0101124	2
		"	(OZF-S-124LM1P)	5SC0101117	2
43	SW RELAY	RY4~RY7	CS11-24SH	5SC0101129	4
44	TRANSISTOR	Q1,Q2	KTA1266Y AUTO	TZTA1266Y-	2
45	TRANSISTOR	Q3,Q4,Q12,Q15	KTC3198GR AUTO	TZTC3198GR	4
46	TRANSISTOR	Q14	KTC-1027Y AUTO	TZTC1027Y-	1
47	TRANSISTOR	Q5~Q11,Q13	KRC106M AUTO	TZRC106M--	8
48	TRANS POWER	LVT1	DMR-210P	5EPU041351	1
49	WIRE COPPER 20mm	J2	1/0.52 TIN COATING	85801052GY	1
50	WIRE COPPER12.5mm	J3~J7	1/0.52 TIN COATING	85801052GY	5
51	WIRE COPPER 10mm	J1,J8,J9,J16	1/0.52 TIN COATING	85801052GY	4
52	WIRE COPPER 7.5mm	J10~J15,SJ2~4,SJ6	1/0.52 TIN COATING	85801052GY	10
53	CONNECTOR WAFER	CN101	HLEM15R-1	4CW215RBD0	1
54	RESISTOR	R101,R102	1/6W 1K Ohm 5%	RD-AZ102J-	2
55	RESISTOR	R103,R104	1/6W 10K Ohm 5%	RD-AZ103J-	2
56	SW ROTARY	EN101	SDB161PVB17F-1-2-36-36PC(PITCH5)	5S10109002	1
57	SW TACT	SW101~SW115	KPT-1115AM	5S50101Z93	15
58	WIRE COPPER 15mm	J101	1/0.50 TIN COATING	85801052GY	1
59	WIRE COPPER 10mm	J102~J104,J106	1/0.51 TIN COATING	85801052GY	4
60	WIRE COPPER 7.5mm	J105	1/0.51 TIN COATING	85801052GY	1
61	WIRE FLAT	WF1	1.25X15X90XC	WSJ-159007	1